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THE OIL WEEKLY

OIL & GAS ENGINEERING

News Statistics

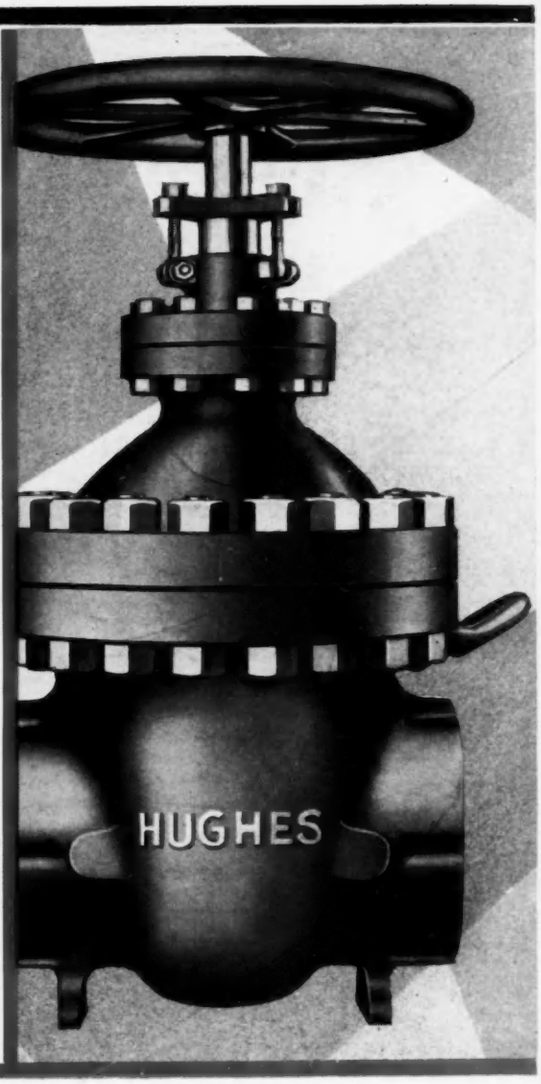
HUGHES Valves

—have established a precedent in valve manufacture for Quality and Dependability — attained only by HUGHES.

Main Office and Plant: HOUSTON, TEXAS

Service Plants
Los Angeles, Calif.
Oklahoma City, Okla.
Midland, Texas

Export Offices
Woolworth Building
New York City



HUGHES TOOL COMPANY

May 22, 1931

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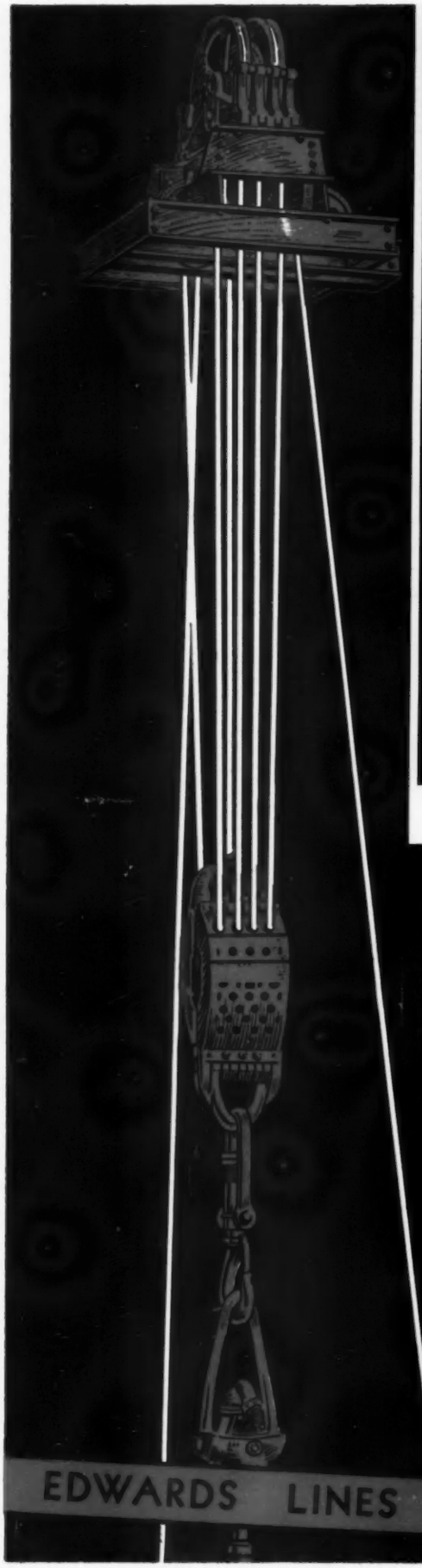


MAXIMUM TON MILE PERFORMANCE

MID-CONTINENT HEADQUARTERS
THOMPSON BUILDING TULSA, OKLAHOMA

EDWARDS WIRE ROPE
E. H. EDWARDS COMPANY
MAIN OFFICE & FACTORY
SAN FRANCISCO
BRANCHES
SEATTLE • PORTLAND • LOS ANGELES
HOUSTON TULSA

EDWARDS LINES ARE LONG LIFE LINES

The OIL WEEKLY. Issued weekly by the Gulf Publishing Co., 3301 Buffalo Drive, Houston, Texas. Subscription price $1.00 per year; 15 cents per copy. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879

The Finest Materials

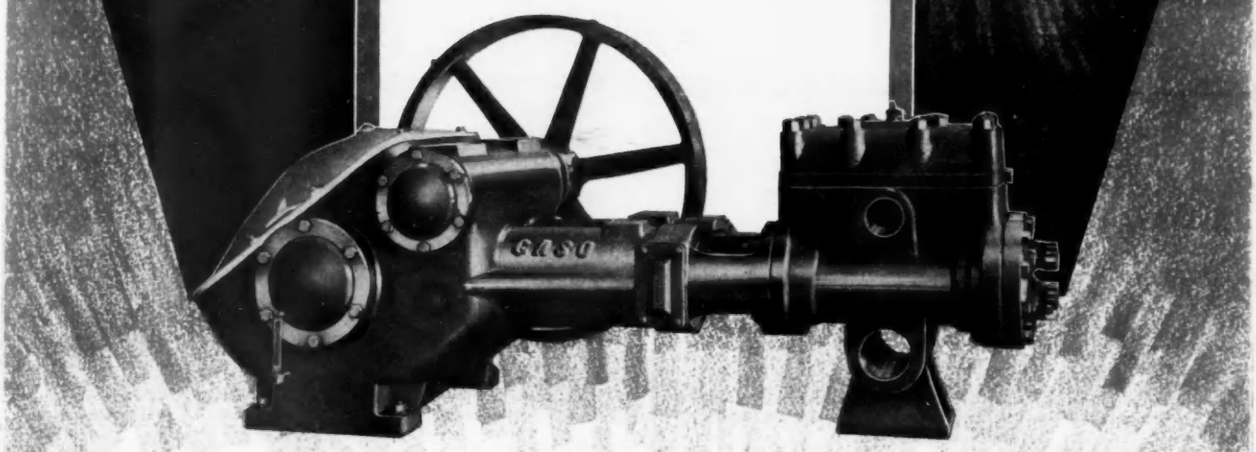
—the Foundation of GASO Pump Economy

Materials for every part of every GASO Pump are painstakingly selected both for suitability and for quality. These finest of materials are the foundation upon which correct design and precision workmanship build the outstanding endurance and economical performance of GASO Pumps.

GASO PUMP & BURNER MFG. CO. - - Tulsa, Okla.

Export Office: New York, N. Y.

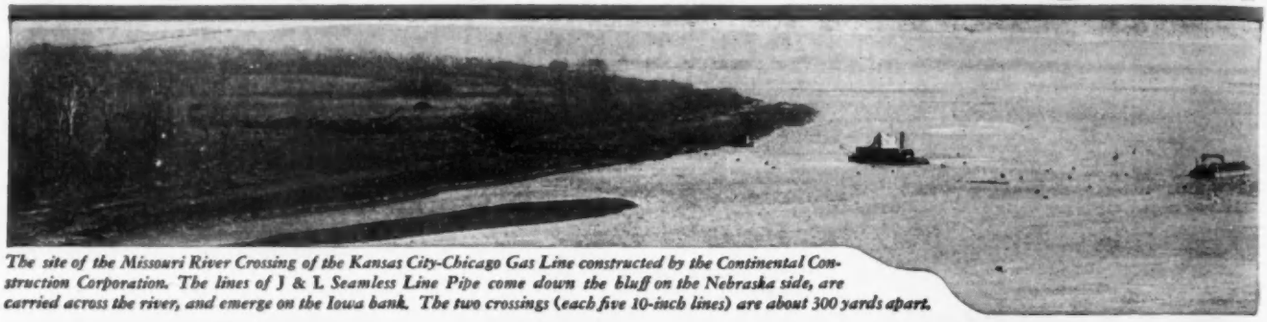
Shown below is GASO Timken Bearing Enclosed Power Pump, Fig. 1508. Interchangeable liners give capacities ranging from 63 bbls. per hour at 800 lbs. working pressure to 250 bbls. per hour at 250 lbs. pressure. Arranged for any type of drive desired.



GASO PUMPS

FOR EVERY OIL INDUSTRY NEED

CROSSING THE MISSOURI



The site of the Missouri River Crossing of the Kansas City-Chicago Gas Line constructed by the Continental Construction Corporation. The lines of J & L Seamless Line Pipe come down the bluff on the Nebraska side, are carried across the river, and emerge on the Iowa bank. The two crossings (each five 10-inch lines) are about 300 yards apart.

1 *One of the two manifolds from each of which five 10-inch lines of J & L Seamless run.*

2 *A 10-inch line of J & L Seamless dropping over the bluff, down to the river bank.*

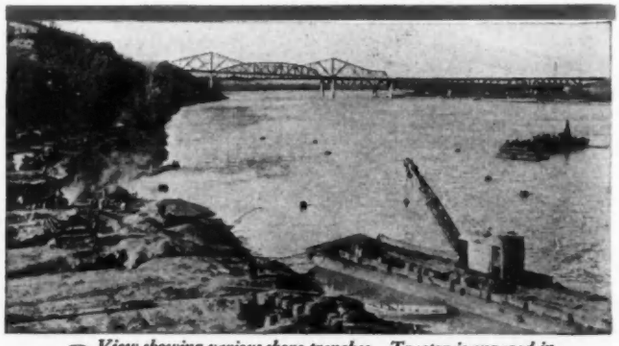
3 *J & L Seamless on the bank, prepared for the crossing. Note coating, and lugs welded on for attaching river couplings.*

4 *A 10-inch J & L Seamless line with its 1500-lb. river couplings attached, ready for the crossing.*

5 *The line being drawn out to the barge. Note the long span—proof of outstanding strength.*

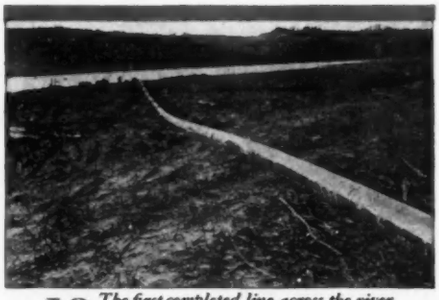
6 *View of shore end of line, ready for the weld of another length. Dredge is trenching river bed.*

7 *Pulling the pipe with tractor, while the barge carrying the end moves across the river.*



8 *View showing various shore trenches. Tractor is engaged in pulling one line of pipe.*

9 *The union completed. Welders joining the two ends of a crossing line.*

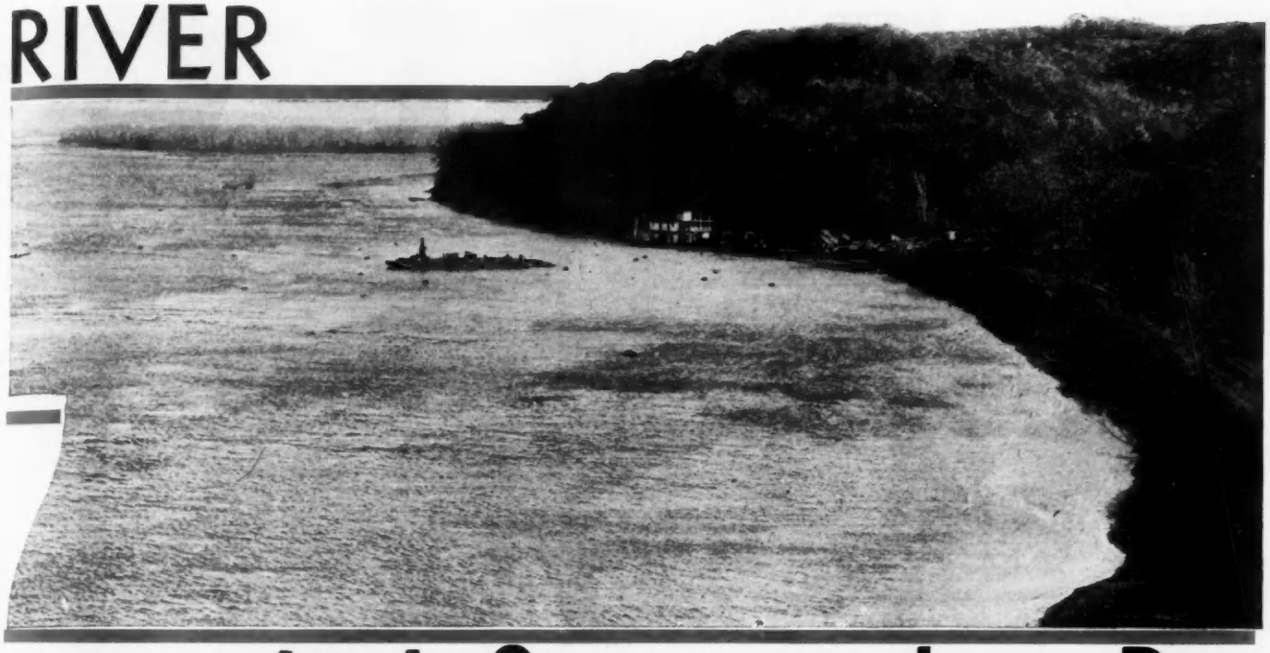


10 *The first completed line across the river, on the Iowa shore.*

JONES

J&L STEEL

RIVER



WITH J & L SEAMLESS LINE PIPE

WHEN the gas line constructed by Continental Construction Corporation from Kansas City to Chicago was being installed, the Missouri River crossing at Plattsmouth, Nebraska, presented a major engineering problem, which demanded the utmost of the men, methods and materials involved. The river is a quarter of a mile wide, and 35 feet deep. The current is 7 miles per hour. Continuity of service is a prime essential.

The 24-inch main was led, by a series of manifolds, into ten 10-inch lines of J & L Seamless Line Pipe, which were laid across the river bed, each in a separate trench. Individual sections of each ten-inch line were welded together, and the 1500-pound river couplings attached. The purpose of these couplings is to weight the line and prevent it from being floated by the current. The end of the line was then picked up by a barge. Tractors equipped with winches pulled the pipe into the river, the barge at the same time moving across the stream. Additional sections were welded on as pulling continued, until the crossing was completed and each line connected with its corresponding line on the other bank.

This crossing represents an outstanding engineering achievement, and an exceptionally severe test of the J & L Seamless Line Pipe used—a test which it passed with flying colors. The successful use of J & L Seamless Line Pipe for this work is a high tribute to its strength and durability, a convincing testimonial to its acknowledged worth.

CASING DRILL PIPE · TUBING LINE PIPE · J&L PIPE · SEAMLESS · WELDED

& LAUGHLIN STEEL CORPORATION

AMERICAN IRON AND STEEL WORKS

JONES & LAUGHLIN BUILDING, PITTSBURGH, PENNSYLVANIA

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R L U S

A WINCH

Prices — f. o. b. Peoria, Illinois

TEN . . . . $1100 TWENTY . . $1900
FIFTEEN . . $1450 THIRTY . . $2375
SIXTY . . . $4175

Three thousand feet deep—this well in an Oklahoma field. The "Caterpillar" Thirty Tractor, equipped with an Allsteel Winch, cleans it, pulls the sucker rods. The power and traction of the "Caterpillar"—plus a winch—earns money and saves minutes for oil men the world over.

Caterpillar Tractor Co.

PEORIA, ILLINOIS, U. S. A.

Track-type Tractors Road Machinery

Combines

(There's a "Caterpillar" Dealer Near You)

CATERPILLAR

REG. U. S. PAT. OFF.

TRACTOR

PRODUCTS B S&B SERVICE

Our Watchword QUICK SERVICE

This is a Chinese symbol of long life, which would aptly apply to all B. S. & B. products.

LONGEVITY

Long and useful life in anything is an indication of satisfactory performance — endurance is proof of quality. The B. S. & B. PERFECTION Vapor Pressure tanks are monuments in themselves to longevity. They not only have years of service to their credit record, but several records of years of service to their credit. These tanks are portable and may be moved from one lease to another or from one location to another in far distant fields. B. S. & B. have branches, and therefore "Service Stations," at or near every proved oil pool in the Mid-Continent and Rocky Mountain fields, with trained erecting crews to erect, take down and re-erect your tanks, thus prolonging their years of service.

B.S.&B. Perfection Vapor Pressure TANKS

These are more than mere ordinary tanks or vats for the storage of crude. These tanks store your crude but also keep it intact, by preventing the escape of the lighter fractions, and thereby maintain the crude at well-head gravity as well as eliminating loss by evaporation.

Each tank is built with strength in mind. It is as structurally correct as a spider's web, with all points of possible strain reinforced. Each tank is equipped with the B. S. & B. Thief Hole Pressure Vacuum Valve, which works automatically at 16 ounce pressure or 2 ounce vacuum.

Let us prove to you the longevity of the B. S. & B. PERFECTION Vapor Pressure tanks. Let us tell of many instances of the double (or longer) lives these tanks have led, and convince you by actual service of their usefulness and long life. A letter, literature or man will gladly call to tell you more about these tanks. Address Dept. A-47.

"Service on the Dot"

Black Sivalls & Bryson INC

BARTLESVILLE - OKLAHOMA

"Service on the Spot"

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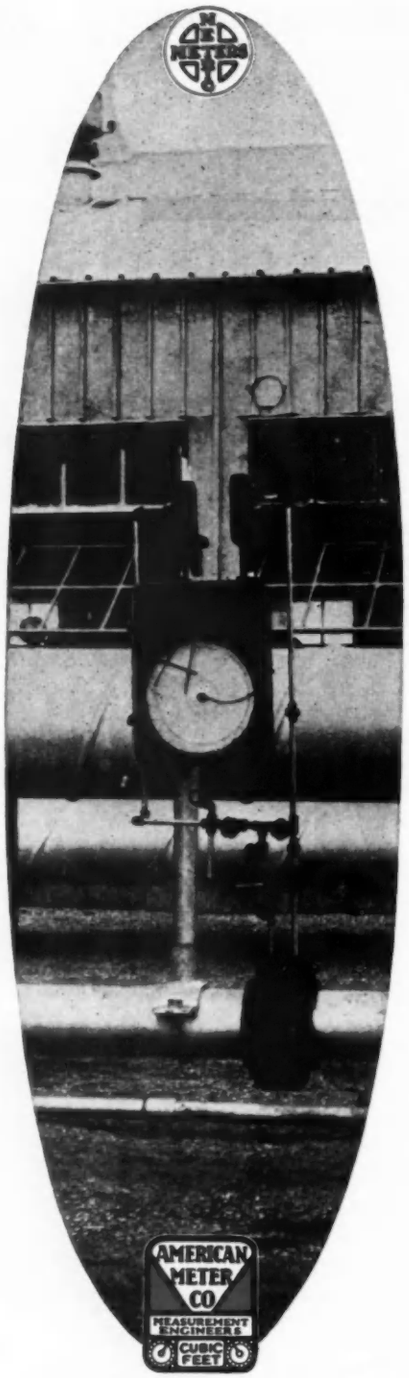

A Westcott Orifice Meter installed on fuel manifold at compressor station of a large repressuring system in Texas.

Faithfully Accurate for Difficult Service

At natural gasoline plants, or at compressing and measuring stations, Orifice Meters are subjected to real tests of merit; and Westcott correct design and rugged construction consistently *pass* these tests, for simplicity and ruggedness are attained without sacrificing precision and permanence of calibration. This applies, of course, to each Westcott installation as a whole, including the accurately machined and honed Metric Orifice Discs.

Westcott Orifice Meters even pass the test of location close to intake of compressor plants, where pulsation and accumulation of liquids in collecting mains often combine to make the most difficult of service conditions. The Westcott combination of large float area with long float lever arm provides powerful leverage and makes possible a long pen arm with a small-angle motion, resulting in sensitive, non-sticking, positive response of the recording pen, no matter how severe the service may be.

Not only is the Westcott Orifice Meter an *instrument* of high precision under normal conditions;—it is also heavy-duty equipment—designed and built for actual, day-in and day-out plant and station service, taking conditions as they come.

METRIC METAL WORKS
ERIE, PENNSYLVANIA
IRONCASE TINNED STEEL CASE and GRIDIRON METERS

AMERICAN METER COMPANY
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The World's Largest Manufacturers of Gas Meters and Allied Apparatus
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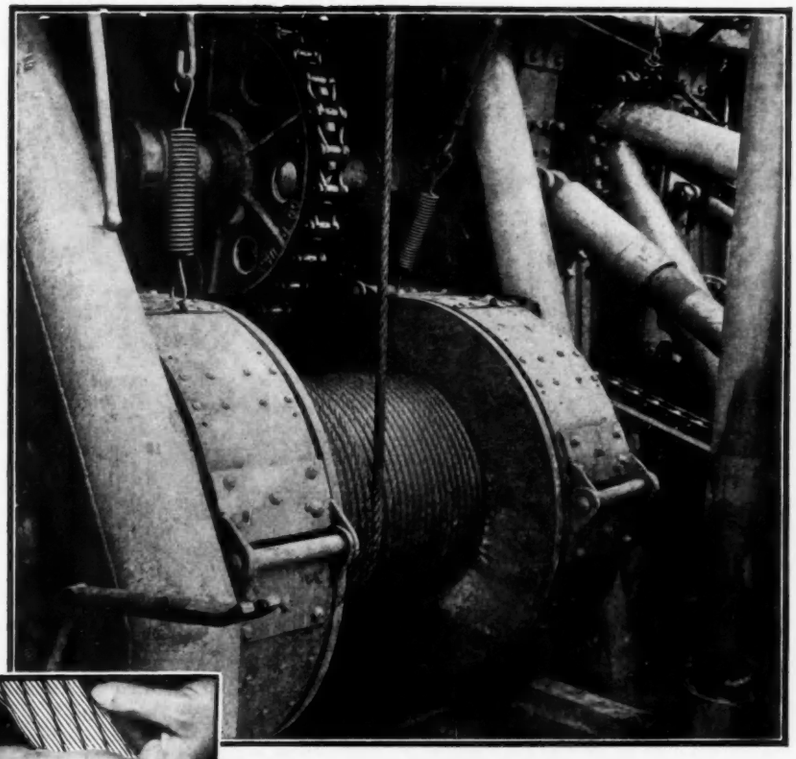


SNUG SPOOLING SAVES WIRE LINE DOLLARS

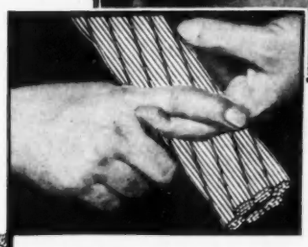
When a loosely spooled idle line is loaded snubbing action takes place which virtually burns up the wire rope.

■

The Tru-Lay Rotary Line, because of its greater flexibility, bends easily and wraps snugly around the drum — it spools almost as snug under the weight of the idle block as it does under the weight of thousands of feet of drill pipe.

■

This is one of the reasons why Tru-Lay Rotary Drilling Lines outlast two and sometimes three ordinary wire rope lines.



RELAXED CONSTRUCTION IS THE ANSWER . . . .

The strand construction of Tru-Lay Preformed Wire Rope is clearly illustrated by folding your forefingers as illustrated at the left. Note how lightly your fingers bear against each other.

Then cross the fingers as shown here. Note the strain on the muscles of your hand. This illustrates the internal stress in ordinary wire rope, because wires and strands are held in position under strain. When you cut ordinary wire rope the strands straighten out and fly apart like a wound-up clock-spring that is suddenly released.

Relaxed construction is the reason for the remarkable service of Tru-Lay Preformed Wire Rope when used for Rotary Drilling Lines, Sucker Rod Lines, Swabbing Lines, and Tubing Lines.

Sold in Field Stores by:

Eastern Oil Fields:
NEW MARTINSVILLE SUPPLY CO.
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Mid-Continent Oil Fields:
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PELICAN WELL TOOL & SUPPLY CO.
Shreveport, La.

Rocky Mountain Oil Fields:
COLONY CORPORATION
Rock Springs, Wyoming

California Oil Fields:
AMERICAN CABLE COMPANY, *Inc.*
San Francisco, Calif.
W. B. CORNISH
3924 Baker Ave., Bell, Calif.
ALCO OIL TOOL COMPANY
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AMERICAN CABLE COMPANY, *Inc.*
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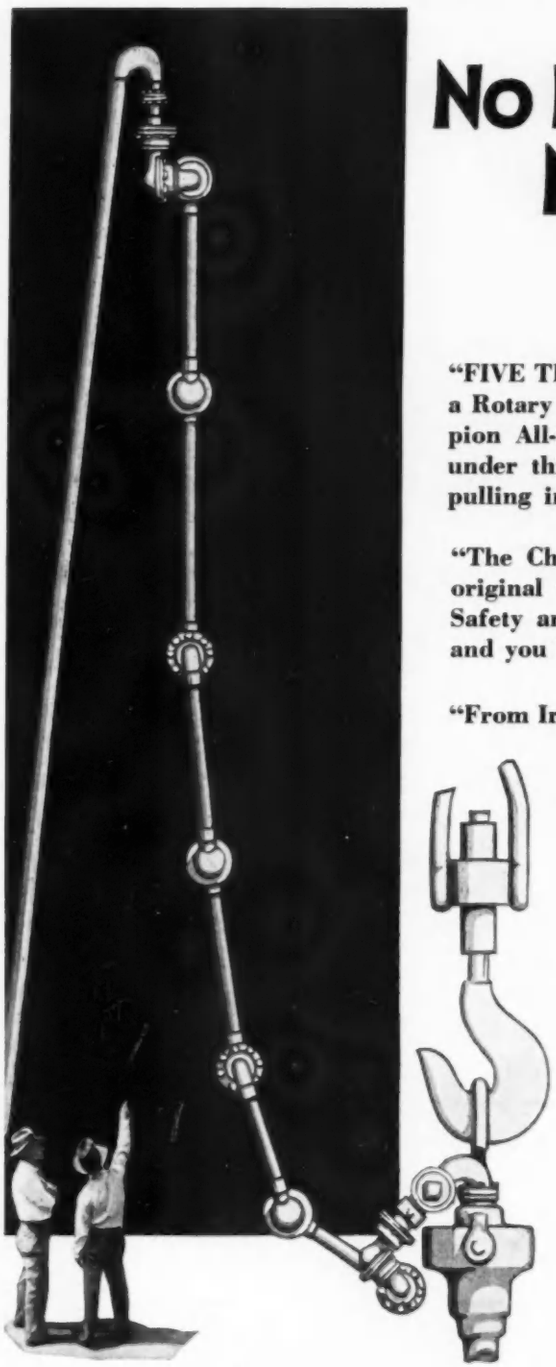
An Associate Company of the American Chain Company
Incorporated

AMERICAN CABLE COMPANY
WIRE LINES
TRU-LAY *Preformed* and CRESCENT *Standard*

"5000 lbs. Pressure and No Kinking-No Binding No Pulling in Two"



"FIVE THOUSAND POUNDS is a lot of pressure for a Rotary Drilling Hose . . . yet the *Improved* Champion All-Steel Rotary Drilling Hose safely operates under this pressure *without* kinking, binding or pulling in two.

"The Champion was always a good steel hose. Add to this original worth Greater Flexibility, Greater Strength, Greater Safety and Greater Economy through Increased Service Life and you have the best steel hose that money can buy!

"From Iraq to Kettleman you'll find Champions . . . . wherever you see them you'll know their users are drilling the shallowest or deepest holes with greater speed, greater safety and greater economy."

May we send you detailed descriptive literature? We'll only tell you what field tested facts have proven.

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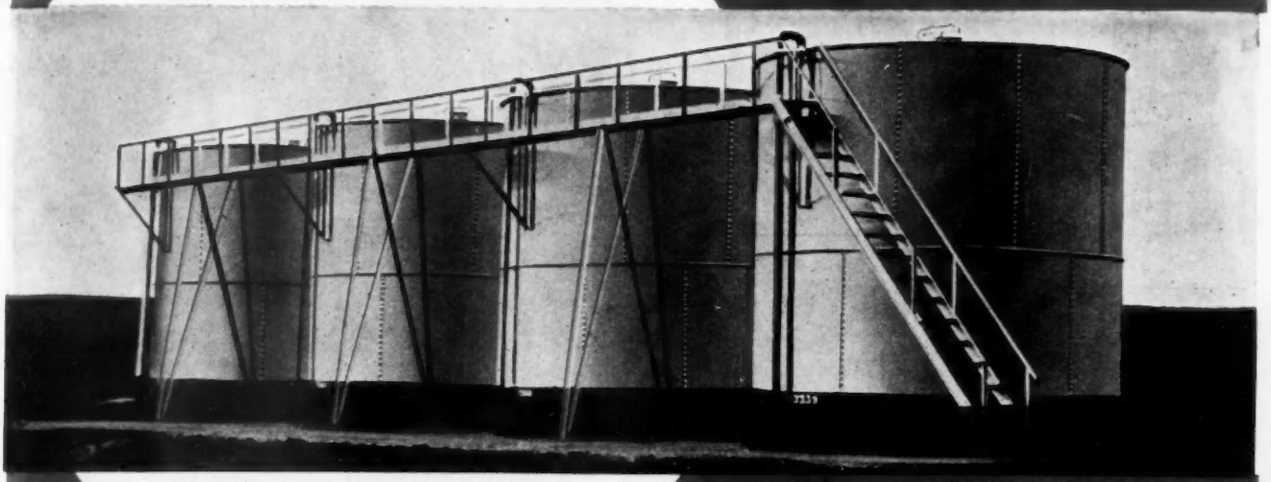
CHAMPION

ALL-STEEL *improved* ROTARY HOSE

BUTLER



BOLTED TANKS USED 8 YEARS

TAKEN DOWN... RE-ERECTED

●

EIGHT years ago the Ohio Oil Company erected this battery of 500 barrel tanks. For eight years it served in the Lance Creek Field of Wyoming.

Recently the Keyes-Butler Tank Company, a unit of the Butler field service organization, cut the battery down and re-erected it.

After eight years of service the only new material needed in re-erection was new bottoms. The eight year old body and deck sheets were in excellent condition.

Like many others, the Ohio Oil Company has standardized on Butler Bolted and Welded Oil Field Tanks in all its operations which extend over Wyoming and Montana.

If you wish the substantial kind of economy that comes from long wear, low maintenance, oil conservation and simplified portability—call a Butler field office for dependable day or night erection, cutting down and re-erection service.

General Export Distributors

OIL WELL SUPPLY COMPANY

Lincoln Building,

London NEW YORK Tampico

Representative in Argentina

THE NATIONAL SUPPLY COMPANY

NEW YORK

BUTLER FIELD TANK SERVICE

These reliable field organizations are ready to render speedy field tank and ready-made steel building service:

Drane-Humphrey Co., at San Angelo, Pyote, Best and McCamey, Texas; and Hobbs, N. M.

Keyes-Butler Tank Co., of Casper, Frannie, and Cody, Wyoming.

Drane Tank Co., at Tulsa, Seminole, Oklahoma City, Okla.; Wichita, McPherson and Lyons, Kans.; Longview, McCamey and Pampa, Texas.

Gulf Coast Tank Company, 1612 Moffit St., Houston, Luling, Refugio, Pettus, Grand Saline, and Arp, Tex. V. P. Hughes, Prop.

Thomas Moran at Oil City, Shreveport, New Iberia, Lake Charles, Zwolle, Houma and Carterville, Louisiana; Henderson and Arp, Texas.

BUTLER MANUFACTURING COMPANY

1246 Eastern Ave., Kansas City, Mo. 946 Sixth Ave., S. E., Minneapolis, Minn.

Dallas

Southwestern Headquarters to American Business

Fairchild Aerial Surveys, *Inc.*

DALLAS IS "READY-MADE" FOR EAST TEXAS OIL DEVELOPMENT . . . . *for the entire Oil Industry!*

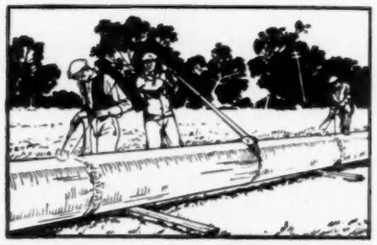
If oil men could have rubbed Aladdin's Magic Lamp and wished for an ideal city, suitable both for their home and business needs, they would have created Dallas.

With the East Texas fields only three hours away, and every other major Southwestern field an over-night run by train or a few hours by plane, Dallas is "ready-made" for East Texas oil development, as well as for the entire oil industry!

Besides financial and business facilities, oil men need homes centrally located so they can spend more time with their families. Because of this, Dallas is welcoming more and more oil men who are establishing their homes here. Proof of this is evidenced by the eighty-five oil companies and supply companies that have located in Dallas since January 1, 1931. These men and their families now understand why Dallas is famed for its warm hospitality . . . its fine residential sections . . . its unsurpassed public school system . . . its five private golf clubs, and eleven public courses . . . its two great universities . . . its luxurious clubs . . . and its many beautiful theatres, including the nationally famous Dallas Little Theatre.

Let us tell you more about Dallas' home and business advantages. Address your inquiry to Industrial Dallas, Inc., 540 Chamber of Commerce Bldg., Dallas, Texas.

In the Mill and on the Firing Line



. . . LINDE PROCESS SERVICE ASSURES DEPENDABLE PIPE WELDS

IN construction of pipe lines in the field or double lengthing of pipe at the mill Linde Process Service can provide invaluable assistance in organizing welding operations for maximum speed, economy and dependability.

Step by step, from mobilization, training and testing of welders this service follows through to the final testing of the completed line. It effectively supplements the work of the customers' own engineers . . . . it focuses upon their problems the wealth of welding experience Linde has gained from two decades of pioneering in the pipe line field . . . . and it translates proved methods and well established laboratory findings into terms of actual field operation.

The predominant use of oxy-acetylene welding for laying pipe reflects the fundamental soundness of Linde Process Service and its assistance in obtaining ever-dependable welds. Every user of Linde Oxygen is privileged to call upon this service for assistance or advice. Write or telephone the nearest Linde District Office.

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Unit of Union Carbide and Carbon Corporation

126 Producing Plants UCC 627 Warehouse Stocks

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LINDE OXYGEN · PREST-O-LITE ACETYLENE · OXWELD APPARATUS AND SUPPLIES · UNION CARBIDE

Which do you need

SOLID WEDGE or DOUBLE DISC?

Sectional view, showing Jenkins solid wedge closing mechanism.

Sectional view, showing Jenkins Double Disc Parallel Seat closing mechanism.

Fig. 325, Jenkins Standard Iron Body Gate Valve, Screwed, with Solid Wedge, Inside Screw, Stationary Spindle.

JENKINS MAKES BOTH!

WHICHEVER type of iron body gate valve you prefer . . . solid wedge or double disc . . . now you can obtain either from Jenkins Bros.

Tested and certified for oil, water, gas or steam service, Jenkins Iron Body Gate Valves provide full-flow opening, leak-tight closing and easy operation.

Jenkins Iron Body Gate Valves are supplied with inside screw and stationary spindle, or outside screw and yoke, rising spindle . . . screwed, flanged or hub ends.

Your supply man can furnish Jenkins Gate Valves promptly. Write for Form 143.

JENKINS BROS.

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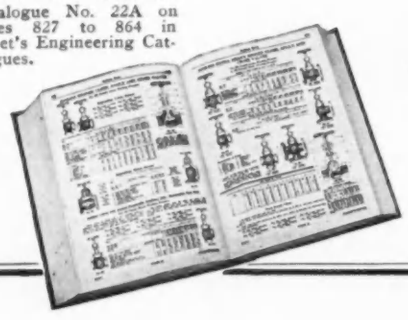
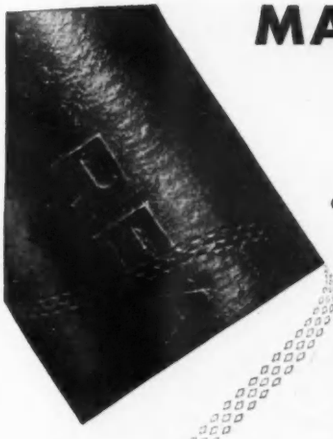
See the complete Jenkins
BOOK OF VALVES
Catalogue No. 22A on pages 827 to 864 in Sweet's Engineering Catalogues.



Jenkins
BRONZE IRON STEEL
VALVES
Since 1864



MAN, OH MAN, WHAT A BUNCH OF RECORDS! ....AND WHAT RECORDS!

(First Cost) ÷ (Years of Service) = (what pipe costs you). Reading Pipe is *low cost* pipe. Look at these—just a few of the thousands of Puddled Iron Pipe records which prove that Reading Puddled Iron Pipe will cut down your costs year after year by giving you *uninterrupted* pipe service. There's only *one sure* way of getting such service—by looking for the Reading *indented* spiral on every length of pipe you buy, specify or install.

44 Years of Use— It Just Won't Grow Old!

For 44 years Tidewater oil has flowed from Western Pennsylvania to Bayonne, N. J., through the same line of Reading Puddled Iron Pipe. Another Reading line, owned by the same company, has been serving 40 years!

Excellent Condition—Used 30 Years!

"Excellent condition" is the verdict today on a line of Reading Puddled Iron Pipe at Houston, Texas. And why not?—the line has only been in service *thirty* years, and that's not much for *Reading* Pipe!

40 Years in Pennsylvania— Now in Texas!

8" line pipe, laid by the Crescent Pipe Line Company, gave more than 40 years of service in Pennsylvania. Picked up and relaid at Breckenridge, Texas, it's still going strong!

This 31-Year Youngster Likes Its Job!

Thirty-one years of conveying natural gas between Kokomo, Indiana, and Chicago—and this Reading Puddled Iron gas line is still going strong!

Another "Transplanted" Reading Line!

Part of the old U. S. Pipe Line for 40 years, Reading 5" line pipe and couplings were reinstalled at Smith Bluff, Texas, in 1923. Now, 8 years later, still going strong!

Buried in Slush 28 Years— Good Today!

Slushy, marshy soils don't mean a thing to a 6" line of Reading Puddled Iron Pipe down at Port Arthur, Texas. Twenty-eight years in place—and still in good condition!

READING PUDDLED IRON PIPE

For information and quotations address

READING IRON COMPANY

READING, PENNSYLVANIA

Atlanta, Baltimore, Boston, Buffalo, Pittsburgh, Cincinnati, New York, Detroit, Houston, St. Louis, San Francisco, Seattle, Chicago, Tulsa, Philadelphia, Los Angeles, Kansas City

READING PIPE distributed by: Frick-Reid Supply Corporation, Bradford Supply Company, Republic Supply Company, Superior Tube Company, International Supply Company. Our own stocks at Houston, Texas.

READING PRODUCTS

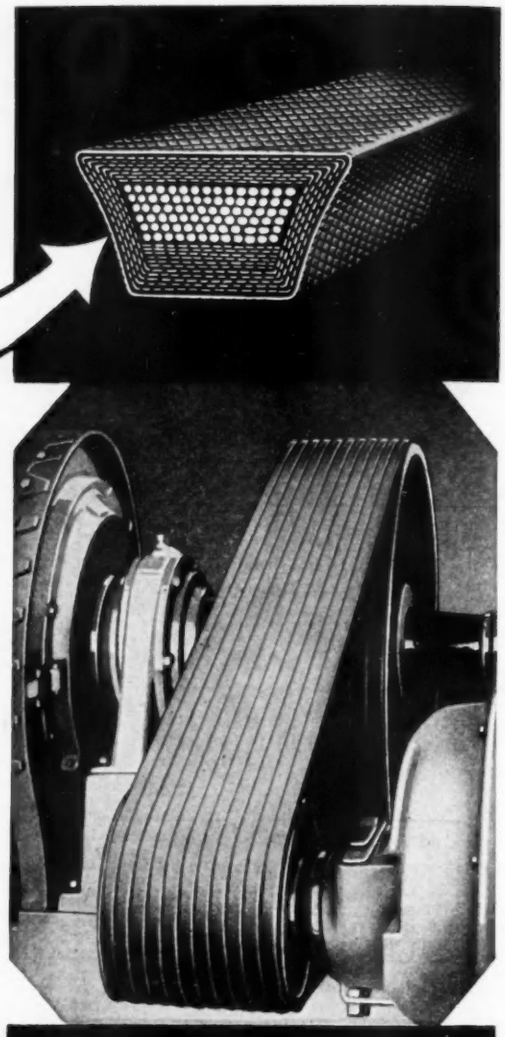
Pipe	Couplings
Tubing	Bar Iron
Casing	Blooms
Sucker Rods	Cut Nails
Nipples	Boiler Tubes

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron

That *simple*

Concave Side

is the Secret of
Efficient V-Belt Drives



Prove this, yourself. Take a V-Belt that has the ordinary **straight** sides. Bend it as it bends in going around a pulley. You will see the top of the belt grow **narrower**, the bottom **wider**, while the sides of the belt **bulge out!** (*fig. 1*)

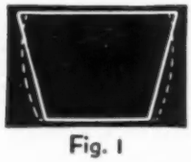


Fig. 1

That shape does not fit the sheave groove. Two results are clear: (1) Where the belt bulges, excessive wear--**shorter life!** (2) The bulging side does not uniformly grip the pulley--loss of **drive efficiency!**

Now bend the belt with the **concave** side (patent pending) -- the Gates Vulco Rope. You will see the **concave** side become **straight,** (*fig. 2*). This belt **exactly fits** the sheave groove. **Two advantages:** (1) Wear is evenly distributed over the whole side of the belt --**longer life!** (2) Entire side of the belt uniformly grips the pulley --full **delivery of power!**

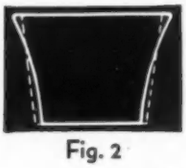


Fig. 2

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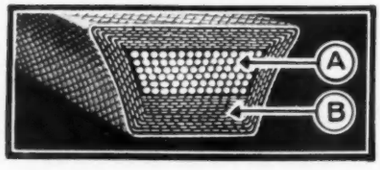

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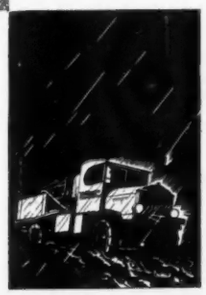

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THE OIL WEEKLY

MAY 22, 1931
Vol. 61, No. 10

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Editor

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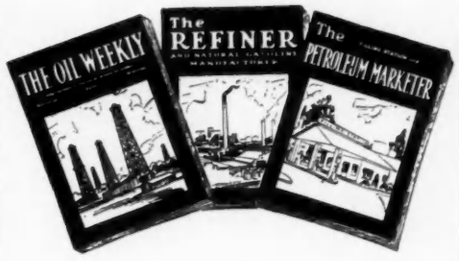

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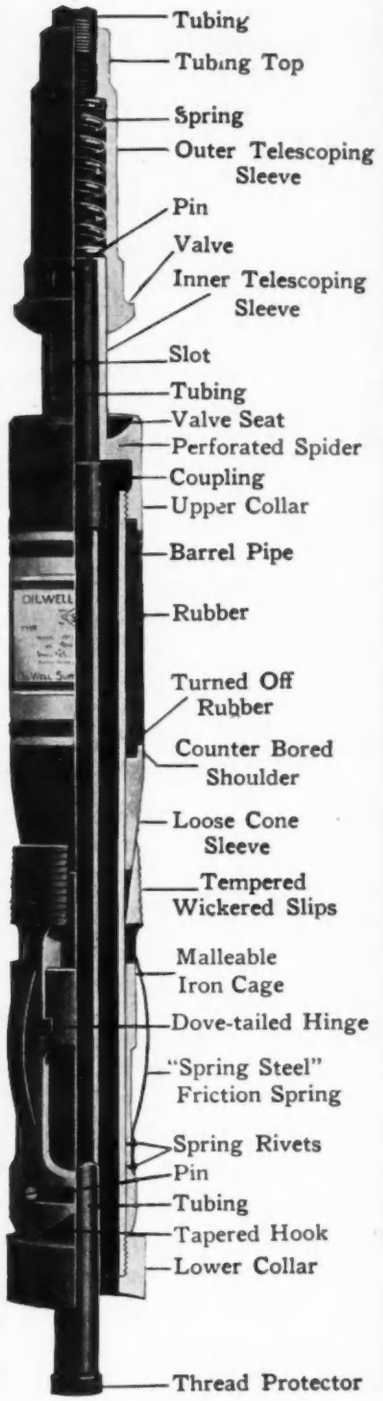

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THE OIL WEEKLY

VOLUME 61, NO. 10 MAY 22, 1931

THE WEEK'S NEWS

A. P. I. Mid-Year Program Takes Up Technical Details

Dallas, Texas.—A forum in which drilling and producing problems of the petroleum industry can be investigated and discussed is provided by the American Petroleum Institute's Division of Production, which will hold its first mid-year meeting in the Baker Hotel, Dallas, June 3 and 4. The meeting will attract hundreds of practical, working oil men for discussion of pertinent field problems, and is held to correlate and review the results of months of work in field and office and to permit consideration of technical details by the many committees, for which time is lacking at the annual meeting of the Institute.

Following is a detailed tentative schedule of group sessions to be held in connection with the first mid-year meeting of the American Petroleum Institute's Division of Production scheduled for Dallas, Texas, the week of June 1 in the Baker Hotel:

Monday, June 1

Special Sub-Committee on Derricks, Hu M. Harris, Chairman, English Junior Room, 10 a. m.

Special Sub-Committee on Welded Tanks, G. Raymond, Chairman, English Room, 10 a. m.

Correlating Committee on Gages and Gaging Practices, H. W. Fletcher, Chairman, Banquet Room No. 2, 8 p. m.

Tuesday, June 2

Belting Engineers' Sub-Committee, D. L. Trax, Chairman, Banquet Room No. 3, 9 a. m.

Standard Rigs and Derricks, W. W. Fondren, Chairman, English Junior Room, 9 a. m.

Oil Country Tubular Goods, John R. Suman, Chairman, Banquet Room No. 1, 9 a. m.

Rotary Drilling Equipment, E. J. Nicklos, Chairman, Banquet Room No. 2, 9 a. m.

Pumping Equipment, T. E. Swigart, Chairman, Banquet Room No. 4, 9 a. m.

Steel Tanks for Oil Storage, G. O. Wilson, Chairman, English Room, 9 a. m.

Measuring, Sampling and Testing of Crude Oil—Group 3—Pipe Lines, and Correlating Committee, Room 324, 9:30 a. m.

Oil Field Belting, Banquet Room No. 3, 10 a. m.

Fire Prevention in Oil Fields, R. W. Pack, Chairman, Room 334, 10 a. m.

Accident Prevention in Oil Fields, Geo. F. Prussing, Chairman, Room 334, 2 p. m.

Corrosion of Oil Field Equipment, E. P. Bly, Chairman, Room 332, 2 p. m.

Topical Committee on Production Research, D. E. Dickey, Chairman, Room 328, 2 p. m.

Disposal of Production Wastes, V. L. Martin, Chairman, Room 334, 8 p. m.

Topical Committee on Prime Movers, D. L. Trax, Chairman, Room 320, 8 p. m.

Topical Committee on Metallurgy of Oil Field Equipment, H. W. Fletcher, Chairman, Room 326, 8 p. m.

Topical Committee on Production Practice, W. W. Scott, Chairman, Room 330, 8 p. m.

Topical Committee on Drilling Practice, J. R. Gignoux, Chairman, Room 328, 8 p. m.

Topical Committee on Production Research, D. E. Dickey, Chairman, Banquet Room No. 1, 8 p. m.

Joint Session—Standardization Central Committee and Special Committee of General Committee, J. Edgar Pew, Chairman, Banquet Room No. 3, 8 p. m.

Wednesday, June 3

General Session—Production Practice, Crystal Ball Room, 9 a. m.

Luncheon, Committee on District Activities, J. R. McWilliams, Chairman, Banquet Room No. 2, noon.

General Session—Current Production Situation, Crystal Ball Room, 2 p. m.

Open Meeting—Committee on Drilling and Production Practice, Crystal Ball Room, 8 p. m.

Thursday, June 4

Committee on Unit Operation—General Session—Activities of Standing Committees, Crystal Ball Room, 9:30 a. m.

General Session—Drilling Practice, Crystal Ball Room, 1:30 p. m.

Division of Production General Committee, R. R. Penn, Chairman, Banquet Room No. 3, 2 p. m.

The registration and information desk and press headquarters will be in the Lounge Room on the Mezzanine Floor.

On Tuesday, June 2 at 9:30 a. m., the Institute's Board of Directors will assemble in the Texas and Pacific Railroad station at Longview, Texas, and at 10:00 a. m., will leave by motor car for an inspection of the East Texas and Van oil fields, returning to Dallas in the evening. On Friday, June 5, the board will hold a meeting in Fort Worth, the session to convene in the Longhorn Room No. 1 of the Texas Hotel at 10:30 a. m.

(*Continued on page 51*)

Kettleman Hills No Longer A "Gasoline" Field

Drop to 37 gravity from 61 degrees leaves this area an ordinary oil field, but with extraordinary potentialities

By BRAD MILLS
Staff Representative

THE economic status of Kettleman Hills has undergone a vast change since the completion of the discovery well as a record light oil producer. A sharp drop in the gravity of the oil produced, a greatly improved gas-oil ratio and completion of wells flowing above 10,000 barrels embody at least an economic transition which must be recognized. Perhaps the most important question involved is whether the increase in average initial production of most recent completions flowing from the lower Temblor formation will offset the sharp loss in the gravity of the crude obtained from below the troublesome gas zone. The constant improvement in the gas-oil ratio will also vitally affect both the development of the field and the quantity of oil produced to furnish adequate gas for various outlets.

Kettleman Hills, after all, is just a great oil field. When the first well came blowing in, flowing 61 gravity oil and more than 100,000,000 cubic feet of gas, the field was recognized as a freak. Here was the first great "gasoline" field ever found in California. The oil was actually lighter than U. S. motor gasoline and contained a negligible percentage of heavier fractions. The field was immediately branded as one capable of producing almost pure gasoline in unlimited quantities. It is still perhaps such a field, but the freakish nature of the upper Temblor formation is now understood, and the gasoline will come from ordinary crude oil and not from a product lighter than gasoline, as has been heralded far and wide.

The first well was completed accidentally. This does not detract from the credit due the discoverers. The fact that the first production was above 60 gravity was not necessarily due to a deliberate completion plan. Since the initial well was a great producer of almost straight gasoline, a few subsequent completions were finished in the top of the Temblor with an almost unprecedented gas-oil ratio, even if with record-breaking flows of 61 gravity oil.

When an analysis of the first oil is considered, it is not difficult to understand why the industry was so disturbed over the possibility of a flood of crude of a new grade. Since various grades of oil had been produced, many geologists were inclined to believe that at last a semi-gasoline field had been found. The original analysis showed:

	Per cent
Gravity (Baume)	60.6
Gasoline, 437° F.E.P.	88.0
Distillation	00.5
Residue	2.5
I. B. P.	72°

Per cent	Degrees
10 over at	203
30 over at	228
40 over at	256
50 over at	270
60 over at	295
70 over at	330
80 over at	376
90 over at	470
97 over at	560

The completion of three more good wells followed the discovery well, and the average gravity of the oil was above that in the discovery well. These wells were finished in the top of the Temblor formation, because nobody knew any better. The action of the first three wells completed after the discovery well served to strengthen the theory that production would be chiefly gasoline. Both the government and the oil industry feared the field, and based their conclusions on the belief that average completions would come in with an initial flow of 5000 barrels of 60-62 gravity oil.

Gas Waste Enormous

The gas waste was enormous and it seemed a shame to blow off as much gas with each barrel of oil produced as should have accompanied 25 barrels of oil. For the sake of obtaining a suitable production of very light oil, operators were prepared to waste almost any quantity of natural gas.

It remained for Superior Oil Company to pave the way for a new conception of the field. This company completed Huffman 1 and proved, after all, that Kettleman Hills is a normal field. This well shut off the upper part of the Temblor formation and was placed on production from about 1000 feet of sand. Instead of the usual 60 gravity oil, the well made more than 11,000 barrels of 39.7 gravity crude. The mystery of the extremely light production from the top of the formation was solved, if such a freakish flow could have been regarded as a mystery. Less than 2000 cubic feet of gas was produced with each barrel of black oil. The much lower gravity of the oil would have lowered estimates of the field value, had production been small, but the fact that an edge well produced such a quantity of oil offset the effect of proof that the field was a normal structure.

Completion of wells producing 36 gravity black oil has eliminated all doubt as to the identity of the field. Petroleum Securities Company has completed two wells in the lower Temblor formation, both having remarkably low gas-oil ratios. The upper part of the formation was entirely shut off to obtain a large flow of black oil and a very efficient gas-oil ratio.

All wells flowing from the top of the Temblor formation will be killed and deepened, thus eliminating all evidence that a great "gasoline" field had been found.

The complexion of the economic status of the field has changed radically since the first well was completed. Despite development of a lower gravity product, the increased flow

North Dome at Kettleman Hills from the air

from edge wells is sufficient to maintain the prestige of the field. Where the tension should have been eased through realization that Kettleman Hills will be a normal field, it has been increased because of the unprecedented production which must come from the lower Temblor formation. Wells producing 25,000 barrels are not only possible, but probable.

An analysis of the 36 gravity crude produced at Kettleman Hills reveals the possibilities of the district, and shows that the field should be feared more because of the refining qualities of the crude than the original belief that the oil would require little refining to convert it into 88 per cent gasoline.

The average 36 gravity oil contains about 42 per cent U. S. motor gasoline, based on a straight run analysis. On the same basis, the gas-oil content is about 25 per cent. The remainder is fuel oil and loss, the latter running about two per cent. Thus it is obvious that the field produces a crude not extremely freakish, when compared with the best neighboring fields.

Ultimate Yield Good

It is when the cracking of the heavier fractions is considered that the ultimate gasoline yield of the crude impresses the operator most. If the gas oil is cracked, a further gasoline yield of about 65 per cent of the gas oil, or 16.25 per cent of the crude oil, is obtained. The fuel oil cracks easily and will account for about 50 per cent of the 30 per cent fuel oil, or 15 per cent of the total, as gasoline. This gives the 36 gravity crude an ultimate gasoline yield of 73-74 per cent. The remainder being fuel oil and waste, the former running around 23 per cent. After cracking, the gas oil is classified with the fuel oil.

After all, it is possible to obtain nearly three-fourths of a gallon of gasoline from each gallon of Kettleman Hills crude, but under straight run methods, the 36 gravity crude will not yield much more than 40 per cent gasoline. Two values may be placed on the crude, one being based on the possibility that much of the oil will be cracked, and another based on the assumption that straight run methods will be used in handling the bulk of production.

Another phase of the change of the economic status of Kettleman Hills, and one which may affect development more than the drop in average gravity of production, is the small amount of natural gas produced per barrel of oil. During the first period of development, it was not unusual to produce 40,000 cubic feet of gas per barrel of oil, and even now the first completions are still allowed to flow under such conditions of waste.

Great gas lines were built to San Francisco, Los Angeles and dozens of other California cities. Construction was based largely on the action of the first completions. There was enough natural gas in sight from a few wells to supply all needs. The main trouble seemed to lie in the finding of a method to produce the required amount of oil without wasting hundreds of millions of cubic feet of gas daily. The waste was enormous from a few wells. What would it be should 100 wells be completed? There seemed no limit to the amount of waste which might be recorded.

Producing of wells having extremely low gas-oil ratio will eliminate all gas waste, and in all probability will result in an actual shortage of gas for the various outlets. Thus, instead of the tail wagging the dog, the dog will at last wag the tail and the field will be ostensibly an oil field after all. This development has been of tremendous importance; and since a production of only 50,000 barrels is contemplated, application of the improved and average gas-oil ratio should result in a maximum gas production of less than 100,000,000 cubic feet.

This leads to the conclusion that if there is an acute shortage of gas with the minimum production of 50,000 barrels, a much larger production may be developed to meet these demands. Buttonwillow, to the south may meet these requirements but it is doubtful whether this gas field will be able to furnish upward of 100,000,000 cubic feet over a long period. If the gas-oil ratio which applies to the three lower Temblor completions will apply to the field as a whole, not more than 90,000,000 cubic feet of gas will be produced with the minimum allotment of oil. This low gas-oil ratio may not hold, however, for lower Temblor completions on top of the structure, and a gas production of 200,000,000 cubic feet with a 50,000-barrel production of oil is possible. In this event, all gas outlets will be supplied and production may be held to the anticipated allotment.

The most important conclusion which may be drawn from developments up to the present time seems to be that Kettleman Hills will be a normal field after all, even if the greatest ever found in California.

Flow *of* Saturated Oil at Back-Pressures Above Saturated Pressures

By W. F. CLOUD AND I. F. BINGHAM
University of Oklahoma

THIS experimental work was done in the Petroleum Engineering laboratory at the University of Oklahoma under the direction of W. F. Cloud and I. F. Bingham, professors of petroleum engineering, assisted by senior students of petroleum engineering.

The data discussed here is a continuation of the research described by Professor Cloud as "Flow Characteristics of Saturated and Unsaturated Crude Oils," and published in the American Institute of Mining Engineers Petroleum Development and Technology for 1930 *as American Petroleum Institute Research Project No.* 33. *A similar article was also published in* THE OIL WEEKLY, *September* 19, 1930.

THE object in mind at the outset was to determine whether or not saturated crude oil can be made to flow as an unsaturated (dead) oil; and if so, will the rate and amount of recovery be practically the same as that of unsaturated oil?

Before proceeding to the results of the experimental work under consideration, it may be well to review briefly some related experimental work, and to discuss the flow curves shown in Figs. 2 and 3.

Until recently it has been supposed that a saturated oil flows more readily through a porous formation than does an unsaturated oil. This premise is based largely upon the theory of reduced viscosity as affecting flow, due to the gas in solution, without taking into consideration some other factors; such as the plugging of the pores of the formation by bubble growth.

The flow curve in Figure 2 is based upon a series of the same experiment, as follows: The flow tube (see Figure 1), while packed with 60-80 mesh Simpson sand to 31.6 per cent porosity was saturated with dead Kiefer, Oklahoma, crude that had been in storage 22 years. The saturation tank was charged with this same crude, and was saturated with natural gas at 250 pounds pressure by means of the compressor and the circulating pump (3, 4 and 13). The saturated oil discharged through the bottom of the saturation tank, operated as the driving medium to displace the unsaturated (dead) oil in the flow tube (16). The pressure in the saturation tank was then built up, without agitation, sufficiently to maintain an input pressure of 250 pounds at the flow tube. The discharge valve at the end of the flow tube was opened wide at the beginning of the flow. The flow, when begun, was continuous until completed. Measurement of oil recovered is recorded for each five-minute period. In this curve, recovery is plotted against time. It can be seen from this curve that, as the dead oil in the tube was displaced by saturated oil, the recovery declined rapidly, see (a) and (b). When the dead oil was all or nearly all displaced by saturated oil, the rate of production settled down to a fairly constant rate. This occurred after about 40 minutes of time had elapsed. The rate of flow from then on to the end of the experiment, 65 minutes usually, was but slightly more than one-third of the flow during the first five minutes, or when only dead oil was flowing.

Another fact that was clearly portrayed in this experiment was that as the saturated oil displaced the unsaturated oil, the gas-oil ratio increased rapidly. The figures are not included for the gas delivery because the gas measuring device did not have sufficient capacity to measure the gas flow during the latter part of the runs. In explanation of the fact that the production figures are not quite consistent, it was observed that upon the appearance of gas-saturated oil at the discharge valve there was a noticeable "heading" followed by blowing of gas slugs.

The curves of Figure 3 were all obtained from the flow of Oklahoma City crude under variable conditions. This oil had an A. P. I. gravity of 36° at 75°F.; and a Saybolt Universal viscosity of 49.8 seconds at 100°F., and 62.4 seconds at 70°F.

In this graph, recovery in cubic centimeters per minute is plotted against differential pressure in pounds between gages (a) and (f.)

Curve (1) records unsaturated (dead) oil at 74°F. Curve (3) also records unsaturated flow, the temperature of the oil was maintained at 70°F. While these curves are straight lines —which is typical of all dead oil flow curves—and are approximately parallel, Curve (3) shows a distinct reduction in recovery. This is typical of rates of flow at comparatively low temperatures, since the oil is more viscous at the lower temperatures, and therefore will be more resistant to flow.

Curve (4) shows the same crude saturated with air at 250

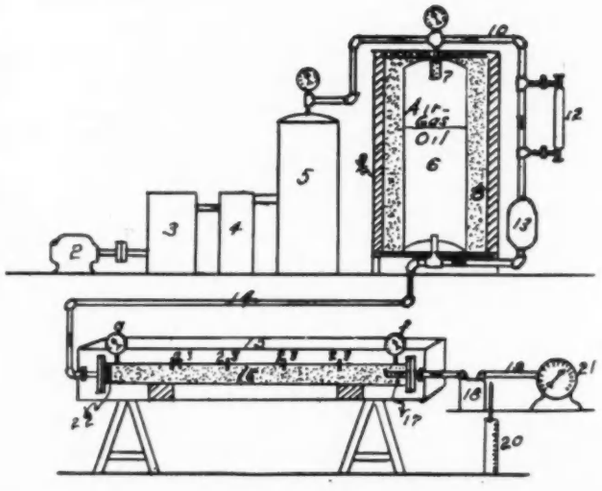


FIGURE 1

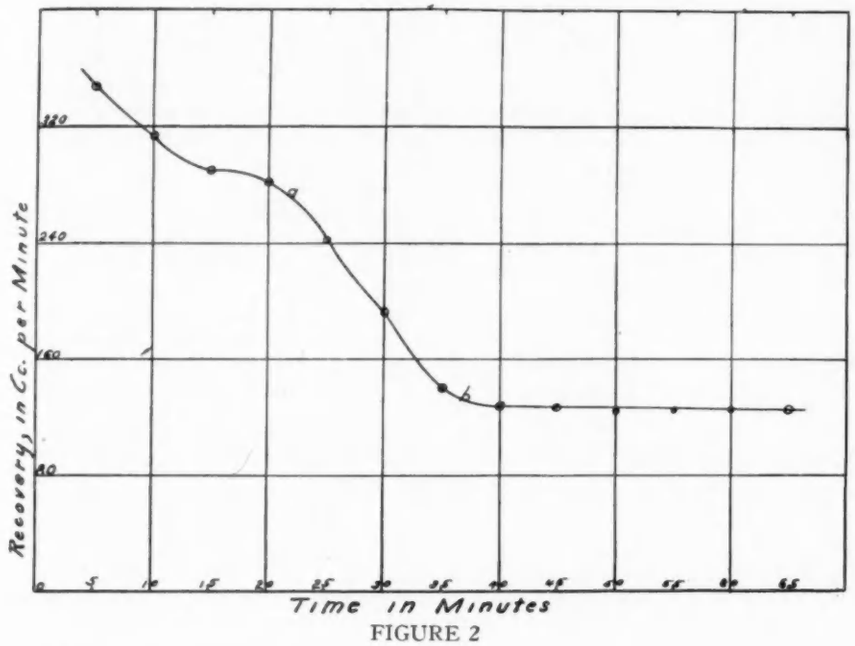


FIGURE 2

pounds pressure, the temperature of the oil being 74°F., the same as that of Curve (1). Input pressure of the flow tube was held at 250 pounds, while various back-pressures were used.

Curve (5) shows the results when the same crude was saturated with natural gas at 250 pounds pressure, the temperature being 77°F. Input pressure was maintained at 250 pounds, and the procedure and back-pressures used when completing Curve (4) were duplicated.

It will be noted that where back-pressures are high—or where differentials are small—the gas and air-saturated flow curves approach straight lines and extend approximately parallel to the unsaturated oil flow curves. The divergance at the greater differentials is no doubt due to the difference in rapidity of gas bubble growth as compared to that of air. Evidence of this is seen in the greater divergence of the curve for gas saturated than for air-saturated flow. This is as it should be, because gas is about 3.5 times as soluble as air in this crude at 250 pounds pressure. Therefore, the plugging (Jamin) effect due to growth of gas bubbles should be greater and the flow smaller at increased differentials.

It is interesting to note that Curve (5) crosses Curve (4) and is maintained above it for differentials smaller than 87 pounds. This is because gas bubbles, since they are more volatile than air bubbles, will respond more readily to high back-pressures, therefore being a better expulsive agent at high back-pressures. Evidently very small gas bubbles—those that are so small as not to plug the sand pores—contain more potential energy per unit volume than do air bubbles of the same size.

Results When Back-Pressures

The object of the experiment which follows was to determine whether or not saturated crude oil could be made to flow as a dead oil by hounding back-pressures above the pressure at which the oil was saturated, thus preventing the gas from coming out of solution, thereby eliminating retardation of flow due to the presence of gas bubbles between the sand grains. Furthermore, if this could be done, would the rate of recovery be practically the same as that of dead oil?

Procedure: About 25 gallons of unsaturated Oklahoma City crude was placed in the saturation tank (see Fig. 1 at (6). Pressure was then applied to the oil, and circulation was started by use of the saturation pump (13), which withdraws oil from the bottom of the saturation tank and discharges it through a nozzle (7) at the top of the tank. This process permits the sprayed oil to fall as a mist downward through the air or gas above the oil in the tank, thus supplying the agitation necessary to quickly saturate a mixture. The circulating pump must be run until the gages fail to register any further decrease in pressure.

When the crude in the tank was completely saturated with natural gas at 105 pounds, additional pressure was applied to the tank without further agitation in order to be able to flow the oil through the tube at a back-pressure at the discharge end which would be greater than the saturation pressure of 105 pounds. The oil was discharged through the half-inch pipe (14) into the flow tube (16), and was recovered by means of the gas trap (18) and a graduated cylinder (20).

In order to avoid the necessity of adjusting valves dur-

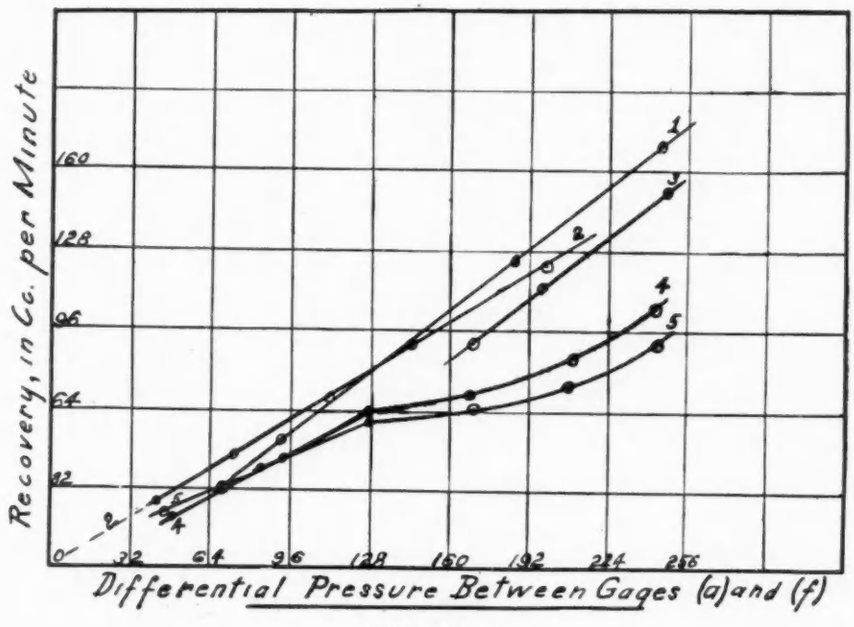


FIGURE 3

Curve No. 1—Unsaturated Oklahoma City crude, Temp. 74°F.
Curve No. 2—Gas-saturated Oklahoma City crude, Temp. 72°F., flowed with back-pressure greater than original saturation pressure.
Curve No. 3—Unsaturated Oklahoma City crude, Temp. 70°F.
Curve No. 4—Oklahoma City crude saturated with air at 250 pounds.
Curve No. 5—Oklahoma City crude saturated with gas at 250 pounds.
Curves Nos. 4 and 5 were taken at 74°F. and 77°F., respectively.

ing the process of taking gauge readings and oil recoveries, the needle valve in the line between the receiving tank (5) and the saturation tank was slightly cracked to admit a small flow of gas continuously, and thus maintain constant pressure on the saturated mix. While holding a back-pressure on gauge (f) slightly above the saturation pressure of 105 pounds, various differentials between gauges (a) and (f) were secured by building up successively higher pressures at gauge (a). After the gauges were adjusted to produce approximately the desired differential, the flow was permitted to continue about 40 minutes without any further adjustment. When the gauges showed no further tendency to fluctuate, several five-minute recoveries were measured. If these recoveries agreed and the gauges contineud to remain constant, the reading was ussed as a point on the curve. The pressure at gauge (a) was then increased to secure another differential, and then the above procedure was repeated.

Curve 2 a Straight Line

From these results Curve (2) of Figure 3 was plotted. In this curve recovery was plotted against pressure differentials, also. It is interesting to note that this curve is a straight line; and that if extended, it would pass through the point of origin.

Another point of interest is that in the region of lower differentials, Curves (1) and (3) Cross Curve (2) and if extended would not pass through the point of origin. This is no doubt due to the greater viscosity of the dead oil which produced Curves (1) and (3). This has the practical significance that the oil for Curve (2) will flow greater quantities at low differentials than the oil for Curves (1) and (3). This is to be expected since the gas in solution reduces the viscosity. Further experimental work will be performed to determine if possible whether the above explanation is entirely responsible for Curve (2) crossing Curves (1) and (3) or whether at higher differentials there is a slight tendency toward bubble growth within the oil which produces Curve (2). The latter, however, seems improbable, in view of the fact that Curve (2) is a straight line flow curve.

What then is the signficance of this straight line curve which closely resembles the dead oil Curves (1) and (3)?

It would seem that a condition of flow has been established where a live or saturated oil flows as a dead oil. This is presumably due to the fact that since the discharge pressure was maintained at a pressure equivalent to or greater than the pressure at which the oil was saturated, gas is prevented from coming out of solution, and consequently prevents bubble growth or Jamin effect within the sand.

To apply this method to field practice necessitates the maintenance of casing head pressure upon flowing wells equivalent to the original formation pressure and building-up differentials through the injection of extraneous gas at key wells. These pressures would necessarly have to appreciably exceed casing head pressures at the flowing wells in order to induce flow. The feasibility of building-up this differential is another matter which this paper does not attempt to discuss. However, some interesting facts along this line may be obtained by reading an account of the results of re-pressuring operations at Sugarland, Texas.[1]

[1]The Oil Weekly, November 14, 1930, p. 26 to 51.
[2]A. I. M. M. E. Petroleum Development and Technology for 1930, p. 347 to 350.

Gas Going Into Solution

When the possibilities of this method of producing new fields was introduced at the petroleum division of the A. I. M. M. E. meeting at New York in Febraury, 1930[2], a portion of the discussion turned upon the probable effects of the injected gas going into solution in the oil within the sand. Should this occur to any appreciable extent, it would possibly eliminate the method under discussion as being of no economic value in producing flowing wells. However, if this factor is of any material consequence, it seems that it would have prevented our obtaining a straight line curve in our experimental work.

Before performing the experiment under title, the following experiment was made to ascertain to what extent gas might be expected to go into solution in the absence of agitation, and to what extent this solubility might affect the results of our experiment, which would require about four hours for completion.

The oil in the saturation tank was completely saturated with natural gas at 250 pounds pressure. The pressure was then increased to 285 pounds without agitation and permitted to remain shut in for 45 hours. The calibrated sampling tube, which contains 375 cc. of oil, discharged 3193 cc. of gas from solution, giving a ratio of 8.51 immediately after saturation. After remaining under pressure for 45 hours without agitation, 3250 cc. of gas were liberated. This was a ration of 8.66. The increase in dissolved gas was negligible so far as the results of the experiment was concerned.

Therefore, it seems reasonable to assume, that in a virgin oil field where this method is applied before any appreciable amount of the oil is extracted, the loss of pressure due to the gas going into solution would be negligible in this case, also.

Conclusions

1. It has been established that dead oil flows faster through a porous formation than does a saturated oil, other conditions remaining constant.
2. Unsaturated (dead) oil flows without bubble growth.
3. Where sufficient back-pressures are maintained, saturated oils flow more efficiently and with lower gas-oil ratio than they do where wide-open flow is permitted. However, the back-pressure required to secure efficient flow may be so high as to greatly restrict production.
4. It seems that the experiment proves that saturated oil may be compelled to flow as dead oil by maintaining discharge pressures on flowing wells equivalent to original saturation (formation) pressures, building up, of course, differential pressures above the initial formation pressure by injection of gas through key wells.
5. Theoretically this differential has no limit, provided discharge pressures are maintained equal to or greater than the pressure at which the oil was saturated. And provided further that the injected gas does not readily go into solution in the oil within the formation.
6. It has been well established that gas is not readily soluble in crude oil without considerable agitation.

Further experimental work is contemplated to determine what differentials would be necessary to induce flow by this method, where the key well is some 200 or 300 feet from the flowing wells. Also to study decline curves and gas-oil ratios, and ultimate recovery, comparing them with similar curves secured from wide-open flow.

NEXT WEEK "DIVISION OF COST AND PROFIT IN UNIT OPERATION"

Distribution of costs and profits has been one of the drawbacks to unit operation of oil fields. A proposed method, applied to a theoretical area, is interestingly discussed in a special article by Robert W. Phelps, consulting petroleum engineer, which is scheduled to appear in *The* OIL WEEKLY of May 29.

Find Buried Pipe Lines Without Digging

ACCURATE spotting of buried pipe lines without disturbing the soil covering in connection with soil resistivity tests and before making repairs and alterations to lines is accomplished by Pure Oil Pipe Line Company of Texas, a subsidiary of Prairie Pipe Line Company, through the use of moderately priced locating devices. Three pipe line locating machines are being used by the company in the operation of its system in Texas; and these devices represent an actual cost for materials of only about $33.00 each. G. M. Johnson, district engineer for the company, perfected the devices, with acknowledgement given to G. H. Montford, engineer for Shell Pipe Line Company, for suggesting same.

Soil resistivity tests are made at regular intervals by Pure Oil Pipe Line Company on all important lines operated in Texas, and the device has proven itself of considerable value in carrying on this work as well as for making connections and changes in the system.

The pipe line locating device consists of transmitter, small portable amplifier and a loop for picking up the transmitted signal, with power derived from dry cell batteries. The former unit of the device costs about $6.04, while the amplifier represents an outlay of $25.40, and the loop amounts to $2.50, according to an inventory taken by Johnson after assembling three of the machines. No allowances have been made in these cost estimates for labor consumed in fabricating the units.

An itemized list of the various parts used in assembling the three units of a complete machine is shown herewith, and also a sketch of the relative position of the various parts when properly assembled.

The transmitter is described as being an ordinary spark coil, with four dry cell batteries, encased in a cabinet with a snap switch for the battery circuit. Two steel contact rods used on this portion of the device are made from discarded crow bars, or preferably an old automobile axle.

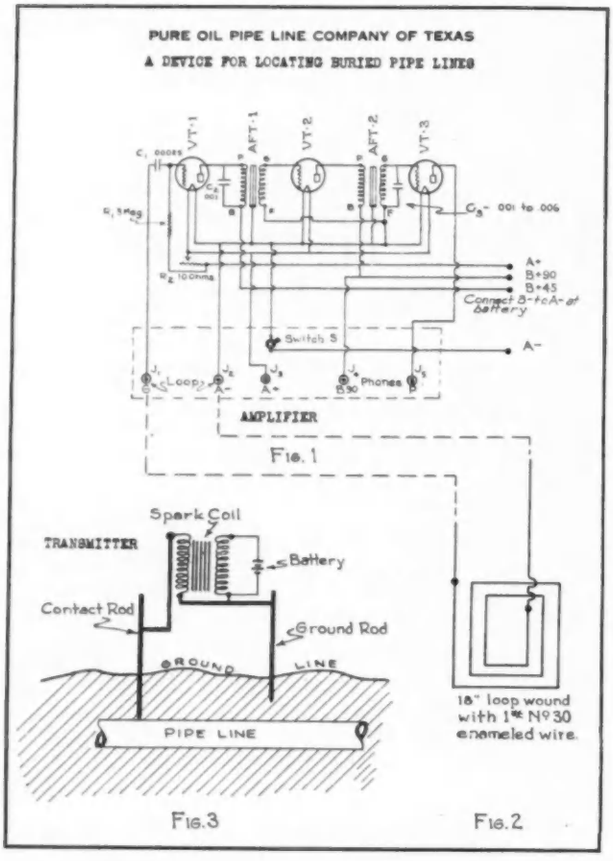
The amplifier consists of a detector and two stages of transformed coupled audio frequency amplification, with three radio tubes. The type UX 230 tube is recommended for the set, although type 199 tube may be substituted for same by adding an extra dry cell battery for lighting the filament. Greater amplification may be obtained if an untuned stage of radio frequency amplification is added, but this arrangement requires an extra tube, and no additional batteries. Four small type 22½ volt "B" batteries are the third most expensive item for this part of the unit. Two 1½ volt (dry cell) "A" batteries are also required. Cabinet for housing the amplifier and batteries and a set of ear phones cost about $2.50 each. Other miscellaneous items, such as a carrying shoulder strap, rheostat, condenser, panels, jacks, sockets, etc., range in price from $1.00 to 25 cents per item.

A small bicycle wheel rim, or two pieces of oak can be used as the frame work for the loop, and the most expensive item of this unit is a pound of No. 30 enameled magnet wire, which is taped down then shellacked.

In connection with soil resistivity tests, one side of the secondary is connected to the pipe line by the aid of a steel contact rod, which is graduated at six-inch intervals to indicate depth of penetration, driven into the ground to contact the pipe. Another rod is driven into the soil about three feet from the line, then connected to the other side of the secondary as shown in Figure 3. Operation of the spark coil produces a signal on the line that may be picked up with the loop and amplified. The buzzing signal that follows may be picked up over the line on either side of the connection, or over any branch lines and crossways lines that make an electrical contact with the pipe line under investigation.

T. R. Wolf, Mexia lineman for Pure Oil Pipe Line Company of Texas, operating the pipe line locating device

Soils with high resistance permit the device to register at distances ranging up to 4500 feet from the point of contact. Less distance is coveral in soils of medium resistance, but the average with this type of device is about 3000 feet. When the soil surrounding the line is of very low resistance, about 200 ohm cms, the signal will not register even when the point of contact is only a few hundred feet removed. Experiments are now under way to determine if greater distances may



be covered by tuning the spark coil and loop to a definite frequency.

Application of the device for locating buried lines is carried out by contacting the pipe line with one of the steel rods, and driving the other into the ground nearby, as shown in Figure 3. With the transmitter set in operation, the loop is then connected to the amplifier at J1 and J2, and head phones at J4 and J5. When the amplifier is turned on a loud buzz can be heard within a few feet of the spark coil, but only over the pipe line beyond such a distance. Placing of the loop vertically and parallel with the pipe line results in the maximum signal being registered directly over same, and may be intercepted by the device for several feet on each side.

The audible spread decreases as the distance from the transmitter is increased. This spread is too great to permit the spotting of markers directly over the line, and such a method should be used only to approximate the location of the line. Upon determining the approximate location of the line the loop should be held horizontally, then moved slowly at right angles to the pipe line and over the supposed location. No signal will register in the head phones when the center of the loop is held directly over the pipe line, but if the loop is moved slightly to either side of this dead spot the buzz of the transmitter will register. A corresponding increase in the width of the dead spot will occur as the distance from the transmitter is increased, and the pipe line will be at the center of this spread.

The loop need not be held near the ground unless it is desired to pick up weak signals. To produce a directional signal on a line, such as lines on pumping station sites, one contact from the transmitter should be connected to one end of the line, and the other contact rod to the opposite end of the pipe line, instead of to the ground as illustrated by Figure 3, using necessary wire to make the connection. The signal will then be confined to the section between the two contact rods. This arrangement is especially desirable for measuring buried lines.

Parts Required for Line Locating Device

Amplifier—Figure 1.	Cost
2—AFT 1 & 2. Audio Frequency Transformers	$ 3.00
3—VTI, 2, & 3. UX 230 Radio Tubes	5.14
1—C1, .00025 mfd. Fixed Condenser	.25
3—UX Sockets for VTI, 2 & 3	.75
1—C2, .001 mfd. Fixed Condenser (Optional)	.35
1—R1, 3 megohm grid leak (Resistance)	.25
1—C3, .001 to .006 mfd. Fixed Condenser. In this instance it may be necessary to use a value as high as .006 to stop oscillations.	.45
1—S, Battery Switch	.35
5—J1, 2, 3, 4, & 5 Phone Tip Jacks	.65
1—5" x 7" Bakelite Subpanel	1.05
1—3" x 7" Bakelite Front Panel	.63
Bolts, Nuts, Brackets, Solder, Hook-up Wire, Etc.	1.00
4—Small 22½ volt B. Batteries	4.56
2—1½ volt A. Batteries (Dry Cells)	.72
1—Cabinet for Containing Amplifier & Batteries	2.50
1—Carrying Strap with Snaps & Buckle	1.00
1—Head Set	2.50
Total	$25.40

Loop—Figure 2.	
2—Pieces of Oak ½" x 1" x 24" or Small Bicycle Rim	.50
2—Phone Tip Jacks	.25
1—Piece of Bakelite 2" x 2"	.10
1—Pound No. 30 Enameled Magnet Wire	1.20
1—Roll of Electricians Linen Tape	.35
1—Bottle of Shellac	.10
Total	$ 2.50

Transmitter—Figure 3.	
1—Spark Coil (Detroit Type L-14)	3.60
4—1½ volt Dry Cells	1.44
1—Snap Switch for Battery Circuit	.25
1—Cabinet with Terminal Bolts	.75
2—Contact Rods (May be obtained from any pipe line junk pile. Small end of discarded crow bar or an old automobile axle will make a good rod)	0
Total	$ 6.04
Total Cost of Equipment as Listed	$32.94

Skelley's First Quarter Net Loss Amounts to $766,344.86

Tulsa.—First quarter statement of Skelly Oil Company for 1931 showed a net loss of $766,344.86, of which about $600,000 was due to inventory adjustment on crude oil and refined oils to the lower market price prevailing March 31. Preferred dividends for the quarters were $179,700, leaving a total charge to surplus of $956,044.86. A part of the statement concerning the current position of the company reads:

"Notwithstanding this reduction of inventory values, the company's current position was improved, the March 31 ratio being 2.9 to 1 compared with 2.4 to 1 December 31, 1930."

The company had 1,011,922 6/10 shares of common stock outstanding at the close of the first quarter of 1931.

Corrosion Tests Proving Value of Coatings

By FLOYD SWINDELL
Staff Representative

TULSA.—Considerable interest has been manifested during the past week in pipe line coating tests which are being conducted on Stanolind Pipe Line Company's line approximately one mile south of Skiatook, in southeastern Osage County. This is the second test to be opened for inspection and 14 others located in seven states remain to be inspected.

The present investigation of protective coatings for pipe lines resulted from recommendations of the sub-committee on production and pipe line corrosion of the American Petroleum Institute presented in the chairman's report in 1928. At that time it was suggested that a large-scale, nation-wide investigation be made through the co-operation of pipe line companies, manufacturers of protective coatings, and the United States Bureau of Standards, all in conjunction with the American Petroleum Institute. Dr. Gordon N. Scott, research associate of the Bureau of Standards, was selected to carry on the work assisted by representatives of various companies involved. The suggestion met with widespread approval and actual work was commenced in May, 1930, after several months of intensive planning. Sixteen sites were selected, four in Texas, three in Oklahoma, three in California, two in Kansas, and one each in Illinois, Indiana, Pennsylvania, and Louisiana. This assured a wide range of conditions both as to soil and climate.

The general plan consists of three sets of tests to be conducted at each of the 16 sites. Division I is centered upon the application of protective coatings to short pipe sections and open to all manufacturers of coating materials; Division II consists of secondary tests to compare coatings selected from entries in Division I and upon actual operating lines from six to 10 inches in diameter; and Division III was established for supplementary tests for the convenience of operators furnishing suitable sites to test single coatings of special interest or design.

At the time of installation of coatings on operating lines and short nipples a careful study was made of soil conditions and each entry was installed in such a way as to give a fair test of its corrosion resisting qualities under known conditions. Blue prints were made showing exact location of each nipple and short sections on operating lines, elevation detail of the lines, coil cover, thickness and structure of the coating, and resistivity of the soil along the lines. Before any coatings were permitted to be applied, the lines were divided into coating allocations, each of which is identified by the symbols of the coating to be applied. The lines were divided into two sections, A and B, Section B having the same coatings and in the same order as Section A. The tests were arranged so as to give duplicate inspection of each coating, thereby providing a more equitable location for the various entries in regard to variation of soil condition, drainage, and corrosiveness. Coating allocations were 30 feet in length separated alternately by 20-foot sections of bare line which provide a check on the corrosiveness of the soil with respect to the unprotected line.

Site Selected

The site selected on the line of Stanolind Pipe Line Company is located at a point where the six and eight-inch unit of the line passes over a hill into a broad valley, the surface of which is covered with two or three feet of brown sandy loam underlain by clay and sandy clay which forms an effective water table. Water stands on much of the valley floor throughout a large part of the year but not in sufficient quantities to remain through the hottest part of the summer. Conditions at the site seem ideal for the test in that they furnish a wide variation of factors which might affect corrosiveness of the soil. Resistivity tests made at the time of installation in August, 1930, show a range of 250 to 3200 ohm centimeters. One novel feature of the tests is the method of locating pits in the pipe without removing the protective coating. A mud

Shepard Earth Resistivity Meter used in determining the corrosiveness of soil along pipe lines

Photographing a section of the line in which soil stress has occurred. Dr. Gordon N. Scott, research associate on the right and J. C. Stirling, engineer for Stanolind Pipe Line Company on the left

bath is applied to the spot to be tested, giving a relatively smooth surface upon which to place sensitized paper. This paper, which is a special Kraft paper sensitized in the field, is placed around the pipe beneath several thicknesses of cloth which has been saturated with salt solution. Twenty volts of electricity are passed into the pipe and allowed to pass laterally along the line. Minute openings in the coating with the resultant pits beneath permit the electrical field to pass outward through the paper, leaving blue spots at the point of each opening through the effect of electrolysis on the ferros ion in the paper. This method was devised by Dr. Scott for positive location of coating failures and pits which could not be otherwise located without removal of the coating.

Revelations of the past week are of special interest since the test has been buried only about eight and one-half months. Four sections upon which protective coatings had been applied were failures and four were rusted and pitted but not to the point of failure. All bare sections of the line were rusted and pitted, some to the extent of being in bad shape. American Petroleum Institute hopes to be able to do much in advising the industry in the matter of protection of pipe lines from corrosion, although it does not expect to furnish a complete solution of this most important problem through the medium of the tests now under way. Results obtained in the two sites already opened for inspection indicate that the information will correlate to such an extent that many of the difficulties will be solved to the satisfaction of pipe line operators and likely will result in changes in the design of many of the coatings now being marketed. It is certain that those who have made the tests possible through financial assistance and the furnishing of necessary engineering skill will feel that a large amount of valuable information has been obtained through a relatively small investment of time and money.

Inspect Pipe at Beaumont After Meeting at Dallas

Tulsa.—Immediately following the Dallas meeting of the American Petroleum Institute, division of production, the American Petroleum Institute will open for inspection its pipe line coating test on Pure Oil Company's line at Spindle Top Gully, Texas. Opening of this test had been tentatively planned for August 3 to 8, inclusive, but due to the assembly of the production division on June 3 and 4, it was thought advisable to rearrange the schedule so as to permit a large number of those interested in pipe line coatings to go directly to Spindle Top.

This inspection is of special interest since it will be the first site at which the short protected nipples have been uncovered. These nipples, consisting of two-foot lengths of three-inch seamless boiler tubes, were carefully prepared and coated with various materials and placed at each of the 16 sites which comprise the entire project. Thus far only unprotected nipples have been uncovered; and those who have been following the tests are anxious to know the outcome.

Dr. Gordon N. Scott, who is in charge of the tests, can be reached at the Edson Hotel, Beaumont, Texas, during the week beginning June 5.

The Scott method by which pits are located in the pipe without removing coating

Flooding, Washing and Hydraulicking Wells

A discussion of these methods to place wells in the best producing condition

By GEORGE O. SUMAN
Petroleum Engineer, Associated Oil Company

YOU will note that the subject of this paper is: "Flooding, Washing and Hydraulicking Wells." Some years ago the subject would have been: "Hot Oiling." More recent improvements and developments make the use of this latter title inadvisable. Hot oil is not generally used anymore for this treatment. Furthermore, oil is not always used, sometimes it is just plain H_2O—water, and sometimes oil and water. So the fact that the oil is not hot and sometimes not used makes it necessary to use a title more in conformity to the advances made in these operations.

Hot oiling was practiced in the field some years ago, but due to unsatisfactory results obtained, such work was discontinued by most operators. The hot oil, heated to around 200°F. and over, according to my information, caused some failures of oil strings due to the expansion of the casing, and produced unsatisfactory results in the oil measures. The casing parted at the collars or split and collapsed. For this reason many of the older operators were opposed to hot oiling.

In resuming work along this line with improved methods and lower oil temperatures, or sometimes without oil, it was quite generally agreed that the term "Hot Oiling" should be done away with not only because of the former prejudices against this practice, but because it did not correctly define the improved and changed procedure of carrying out such work.

This paper was presented before San Joaquin Valley Chapter, American Petroleum Institute, May 19, 1931.

THE work of flooding or hydraulicking wells in the older fields is not practiced as extensively in periods of overproduction and low prices for the reason that many companies desire to reduce operating expenses as much as possible and do not desire any increase of production. However, such operations continue to be carried out more or less extensively in bringing in and maintaining new wells in low pressure areas, and in routine production operations in various fields.

These operations are performed for two purposes:

(1) The removal of sand from the oil string; (2) the opening of clogged perforations or breaking down the seal against the face of the oil sand. The nature and extent of the sand trouble will depend upon the character of the oil zone and the size of perforations used in the oil string. Sand in the oil strings of practically clean oil wells is ordinarily loose and continuous, that is, not bridged and can be easily removed from the hole. This is especially true in heavier gravity wells where the mixture of oil and sand is prevented from packing, due to the viscosity of the oil. Sand in the oil strings of wells producing water is ordinarily more or less firmly packed, due to being water washed sand with little oil in it, and it occurs in bridges. The character and extent of these bridges will depend upon the nature of the water trouble. For instance, if water is coming in above the bottom of the hole, then the upper part of the sand may be washed sand bridges, whereas, the lower part not affected by the water will probably be solid and continuous oil saturated sand.

Reasons for Clogging

There are various reasons known and suspected as to why perforations in oil strings are clogged or the face of the oil sand somewhat sealed, thus preventing the oil from entering the hole. Some of these reasons are as follows:

(1) Mudladen fluid used in drilling and never removed from behind the oil string.

(2) Caving shales between oil sands breaking down into mud fluid when washed by water.

(3) Collection of paraffine or tar behind the oil string.

(4) Filling of voids in oil sand back of the oil string by finer sand carried towards the hole by the oil.

(5) Shale particles in shale strata in oil zone breaking off and lodging against perforations.

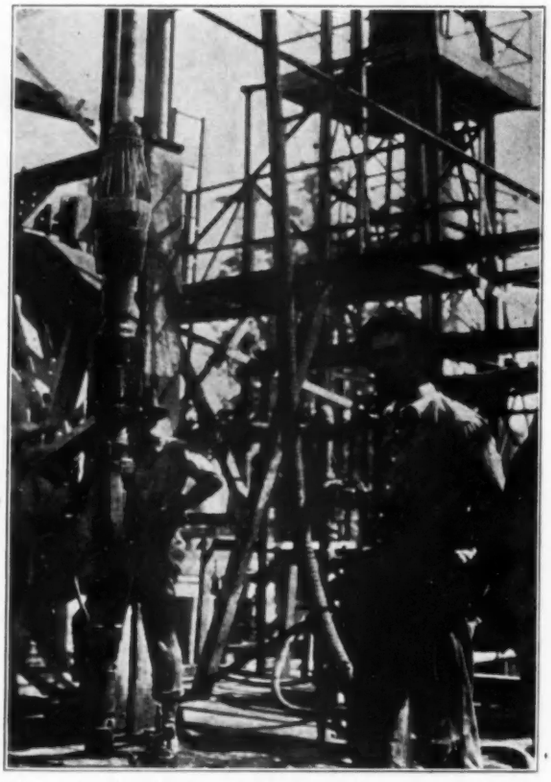
There are cases known where it was practically certain that mudladen fluid remained behind the oil string in low pressure and high pressure fields for sometime after the completion of wells and restricting their production due to this situation. In fact probably anyone who has been in the field for awhile has had wells pointed out which, due to the special features of their drilling, such as, length of time mudladen fluid was circulated against the oil zone or necessity of an exceedingly thorough job of this nature, never produced oil in satisfactory quantities when subsequently placed on production.

Analysis of Residue from Well in Coalinga Field, California

Appearance	Solid waxy material
Color	Brown
Paraffine	22.10 per cent
Asphalt	32.50 per cent
Mineral Oil, gravity API 22.7	43.20 per cent
Water	1.80 per cent
Ash (iron oxide)	0.22 per cent
Errors	0.38 per cent
	100.00 per cent

Formation of Mud Fluid

Mud fluid sometimes appears in old wells in such quantities as to definitely prove the formation of this condition



Views showing Perkins Perforation Cleaner about to be run into deep well in the Los Angeles Basin.

in the hole due to the contact of water with caving shale bodies.

The occurrence of paraffine and tar material in tubing and no rods in large quantities in some wells lends strength to the assertion that perhaps a number of wells are subject to this trouble to a more or less degree. The worst examples of this have been noted in the Fruitvale and Coalinga fields. At Fruitvale one well ordinarily has from 60 to 80 feet in length and the full diameter of the tubing of this material when the rods are pulled. At Coalinga one well must have the tubing steamed out to remove this material and the rods cleaned off whenever the rods and tubing are pulled.

There is no proof that the fine sand particles sometimes come in and fill up the voids in the sand against the oil string thus restricting production. However, where the perforations have been rather small and little sand has come into the hole and subsequent treatment has been given the well with an increase of production resulting, it has been thought that possibly this was one of the contributing factors toward the former less satisfactory oil production.

Shale particles clogging the perforations is believed to occur mostly in wells from which considerable sand has been pumped or otherwise removed, leaving a cavity back of the oil string and permitting the breaking off and falling into the oil sand of the intervening shale beds.

Oil

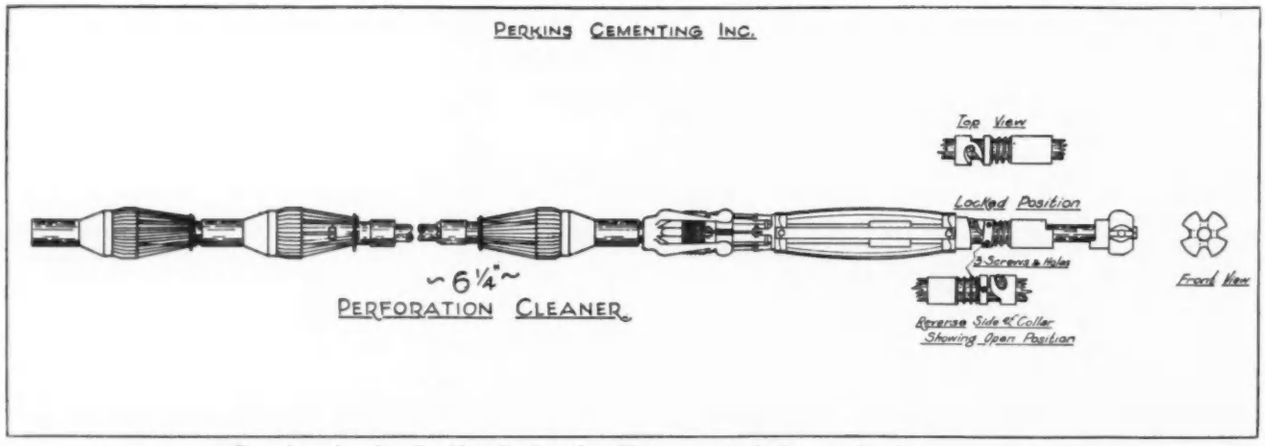
The oil used in these operations is ordinarily that from the well or the closest available oil tank on or in the vicinity of the property on which the well or group of wells selected for treatment is located. It is not heated at all, or if heated, is not brought to a temperature much more than 25 degrees to 50 degrees F. above the temperature of the oil zone. On heavy oil properties it is advisable to heat the oil in order to make it easier to handle. The oil is often not heated, due to the fact that satisfactory results can be obtained without doing so, and to avoid the expense of setting up and firing boilers in connection with this work where such facilities are not available.

In fact setting up boilers, laying lines, and other expenses are avoided as much as possible. The lead lines from the wells are ordinarly utilized to pump the oil to wells.

Flooding

Flooding is the simplest treatment of those under discussion. Oil is used for this operation. It is pumped down through the tubing or down between the tubing and the casing. This treatment is performed for the purpose of opening up clogged perforations or breaking down the seal against the face of the oil sand. The object in pumping in the oil is to build up a high head of fluid in the hole which will exert sufficient pressure in the oil string to secure the desired results. The amount of oil pumped in will depend upon the depth of the hole and the fluid level of the well. It is not uncommon for a sufficient amount of oil to be pumped in to raise the fluid level to the surface. A subsequent treatment with the same amount of oil may not raise the fluid level up to the same height, due to the previous treatment having opened up the oil zone thus permitting the formation to take oil much faster when a later treatment is in progress.

The proof of the results obtained comes on resuming



Drawing showing Perkins Perforation Cleaner with Guiberson Swab arrangement

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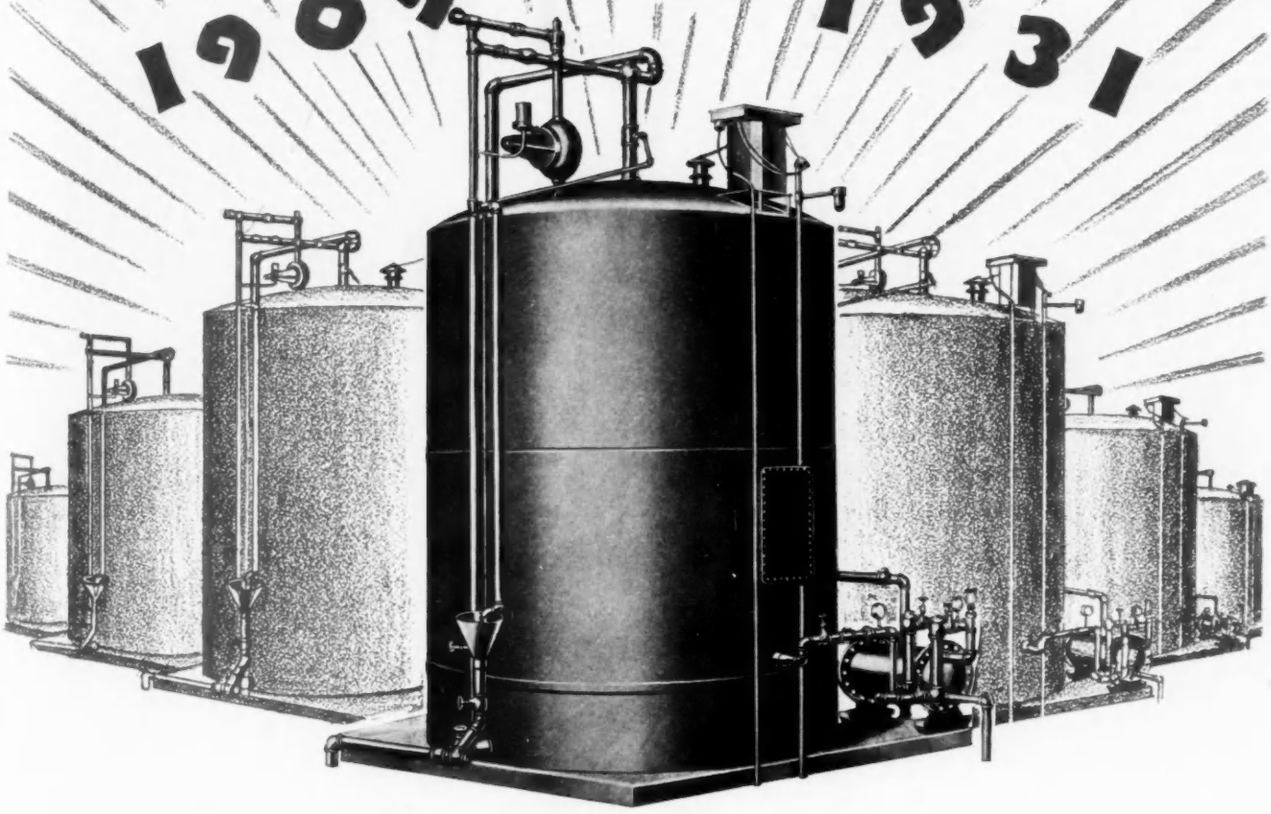

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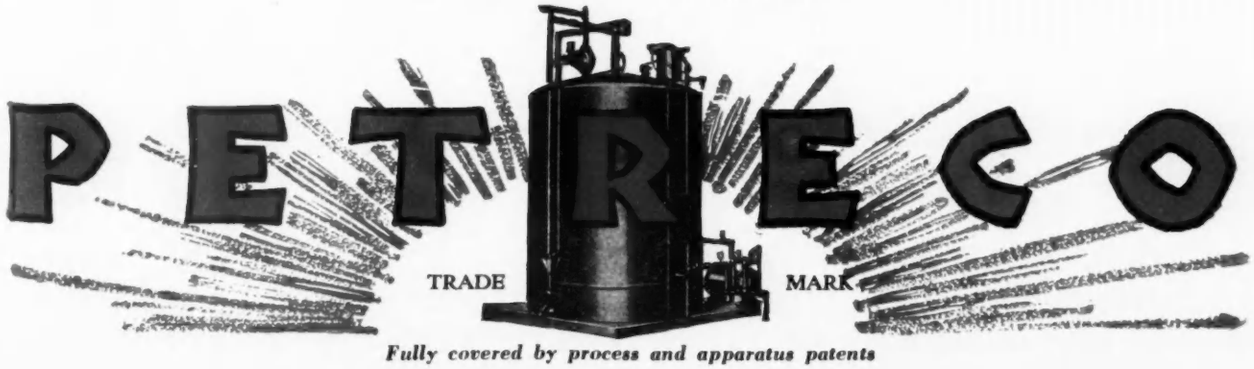

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pumping operations. If, after pumping out an amount of oil equal to that pumped in, the production of the well is maintained at a higher level than formerly, then the treatment must have accomplished the results desired in the hole. Wells have shown as much as 50 to 100 per cent increase in production for months following such work.

Small Portion Affected

The weakness of this treatment lies in the fact that only a small portion of the oil zone may be affected by it. The most open part of the perforations and the most porous portion of the oil zone may readily permit the oil to pass out into the oil measures.

Continuous circulation — so called—which resembles flooding, but which is resorted to for a different purpose, is sometimes performed. A portion of the oil pumped out is returned to the well from a nearby tank by permitting it to flow down between the tubing and the casing. A higher oil level is maintained in this way, and a continuous pumping out of oil assured. It is claimed that sand trouble in the hole and in the pump is greatly lessened by the use of this method and a more steady and increased production obtained. It has the effect of maintaining a higher back pressure on the oil zone, thus tending to hold in check the tendency of sand to come into the hole. This practice does not have the support that it formerly had. It is now generally felt that slow motion pumping should correct the difficulties in such wells. It is believed that by slow motion pumping and determination of the proper rate of production, the fluid level in the well should be properly maintained without resorting to continuous circulation.

Washing

Washing is done for the purpose of opening up clogged perforations or breaking down the seal against the face of the oil sand. It is performed by the use of rather simple tools or by the use of more modern and efficient tools. In doing this work oil, water and oil or water is used.

The tools and methods used for performing this work divide themselves into three classes, namely: (1) tubing only; (2) tools with side openings or jets; and (3) tools with restricted areas between packers.

Tubing Only

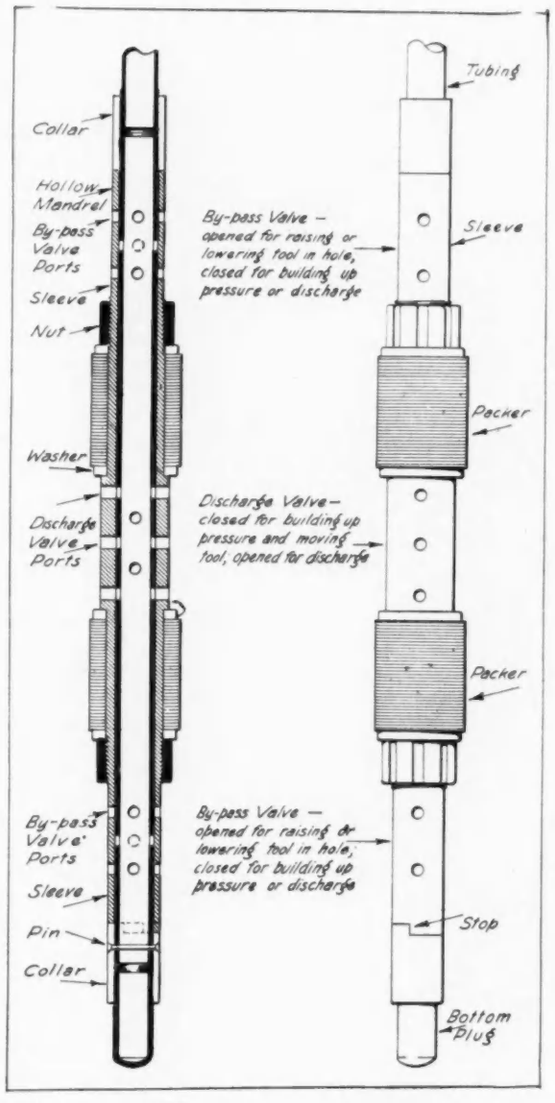
When using tubing only, oil is used and the tubing lowered to bottom or to the lowest point desired. Oil is pumped in through the tubing and it is gradually raised until the distance in the oil zone desired has been washed. Pumping is continued as the tubing is raised, the distance the tubing being raised in one operation without change of connections depending on the height of the standpipe in the derrick and the length of the hose connection to the tubing.

This method is seldom used now due to more satisfactory results being obtained by using a washing tool on the end of the tubing. Some fair results have been claimed for it in some cases in the past. Running in tubing and washing out the hole with water is, of course, common practice in bringing in new wells.

Washing Tools With Side Openings or Jets

The operation of washing is performed as noted above with tubing only, except that a tool is run on the bottom of the tubing with side openings or jets. These openings vary in size and number according to the operator. The holes project at an angle from the tool toward the perforations, the idea being to project a stream of fluid at a higher velocity against the perforations.

This method is favored over the tubing only method as more effectively performing the operation desired. Some good results have been claimed for it in the past. However, it is doubtful whether it will be used as extensively in the future as in the past, due to the more effective tools now available.



Holliday restricted area two-packer perforation cleaner

It should be observed that the open tubing, and to some extent, the side opening or jet tool method do not require the oil string to be in good shape in order to perform the operation. Where the pipe is somewhat bad, such as, parted, crooked, or collapsed, it is sometimes possible to run down below the bad pipe and commence the operation. These methods, therefore, can sometimes be used on a well where it would be impossible to go down with a close fitting tool.

Washing Tools with Packers

Tools with packers having a limited restricted area through which oil is forced out and through the perforations falls into three classifications, as follows:

(1) Simple two packer washer. Two packers are set apart within a range of from one to four feet. The tool with valve on bottom is perforated between packers so that the fluid pumped in must flow out between the packers. The packers are made to fit against the oil string into which tool is run so that the fluid pumped out through the perforated zone of the tool is in turn forced to pass out through the perforated oil string between the two packers.

Any material which is satisfactory for use as swab packers will be satisfactory for this work.

(2) Halliday Perforation Cleaner. The tool has a restricted area of ordinarily one foot—a packer is placed above and below this restricted area. This tool has a valve system which is controlled by turning the tubing to various positions at the surface thereby permitting the following results:

(a) Running of tool into hole open so that fluid in hole comes up into tubing and also through valve above top packer and out between tubing and casing.

(b) Closing of openings so that pressure can be built up as high as desired. By turning the tubing fluid under pressure is permitted to flow out through perforations in tool in the restricted area and out through perforations in oil string.

(c) Closing of all openings except the one above top packer. This permits circulation of fluid between tubing and casing in case sand settled on top of the upper packer.

(3) Perkins Perforation Cleaner. The tool has three Guiberson swab rubbers, the lower one right side up and the upper two inverted with a tubing catcher on the bottom of the assembly. By pulling the swab rubbers apart and permitting them to come together on giving them the weight of the tubing, the fluid between the swab rubbers is forced out between the perforations. The tool has an over-all length of about 15 feet with a working range of five feet. When the tool is at the desired point, a half turn to the right releases the catcher. After the tubing catcher is set, the tubing is pulled up five feet permitting the fluid in the hole to enter through valves located within the wire cages of the swab rubbers. When the tubing is lowered, these valves close automatically and the fluid in this five-foot range is squeezed out through the perforations in the oil string. This operation is ordinarily performed from two to three times at one place after which the entire assembly is pulled up five feet and the operation repeated.

Run to Lowest Point

The tool is always run to the lowest point and raised up as the washing operation progresses, in order to reduce the risk of sand coming in and settling on top of it.

The simple two packer washer has been used in the past to wash mudladen fluid out from behind the oil string previous to placing wells on production in low pressure areas. It has also been used to clean out perforations on wells after completion. The tool has given good service and accomplished good results in many cases.

The Halliday perforation cleaner has been used in old wells to clean out the perforations. It has given good results in some cases. Due to forcing the fluid out under pressure, it is thought that it is very efficient in cleaning out the perforations and any clogged condition around them. In some cases water was used in operating this tool in fairly clean oil wells. The results indicated that when the amount of water was carefully limited the results were as good as when using warm oil. The tool requires tight fitting solid packers. This naturally restricts its use to wells with undamaged oil strings.

The Perkins perforation cleaner has advantages over the above tool in that it requires no pumps to perform the operation, and does not require a perfect oil string. The fluid in the hole is used exclusively to carry out the operation and the weight of the tubing forces it out. Guiberson swabs are somewhat flexible permitting it to be run in slightly damaged pipe.

It should be mentioned that these cleaners can be used to advantage in old wells in which there is some doubt as to whether the oil string is perforated in some places. It can be seen that when run against blank casing the fact would register very clearly to the operator of the tool at the surface.

Results Obtained

Results obtained with the Perkins perforation cleaner have varied. Data from Huntington Beach, Richfield, Long Beach, Inglewood and Midway-Sunset show that some wells have been materially benefitted. Some of the results obtained are as follows:

Well increased from 850 barrels oil, 250 barrels water per month to 3736 barrels oil, 1036 barrels water per month.

Well increased from 1549 barrels oil, 649 barrels water per month to 4338 barrels oil, 247 barrels water per month.

Three wells increased from 113 barrels to 203 barrels oil per day.

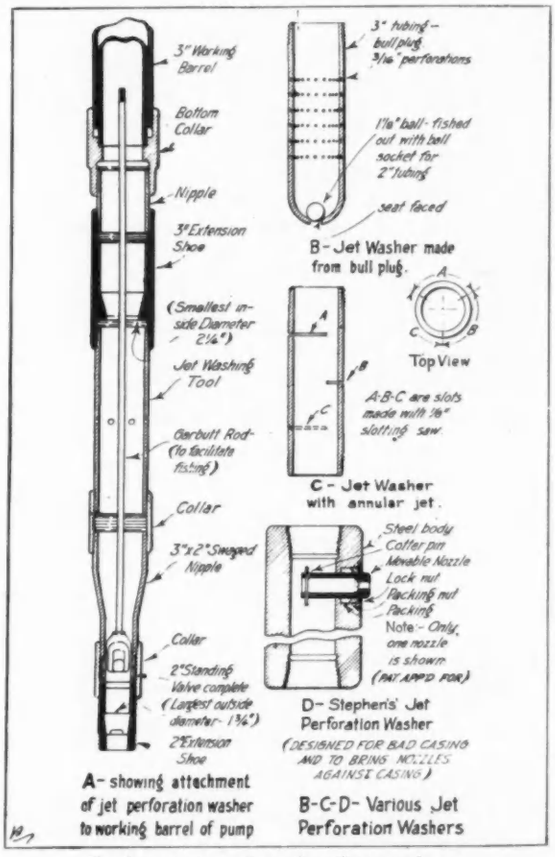
Three wells increased from 395 barrels to 885 barrels oil per day.

Eleven wells, no results.

In the wells producing no results the operators have been generally satisfied with the tool. They felt that the wells were definitely proved to be producing all they were capable of producing. In one well which had come in under high pressure, considerable mud was found in the hole after running the tool showing that some of the rotary mud had not been removed from the hole by the flowing well. Due to the disturbance of the oil sand, some wells have to be cleaned out before placing them on production after running this tool. Several cleaning out jobs have been necessary on wells where the oil zone was considerably disturbed by the treatment. The tool is also run by some operators to clean out the rotary mud from behind the casing before placing new wells on production in low pressure areas.

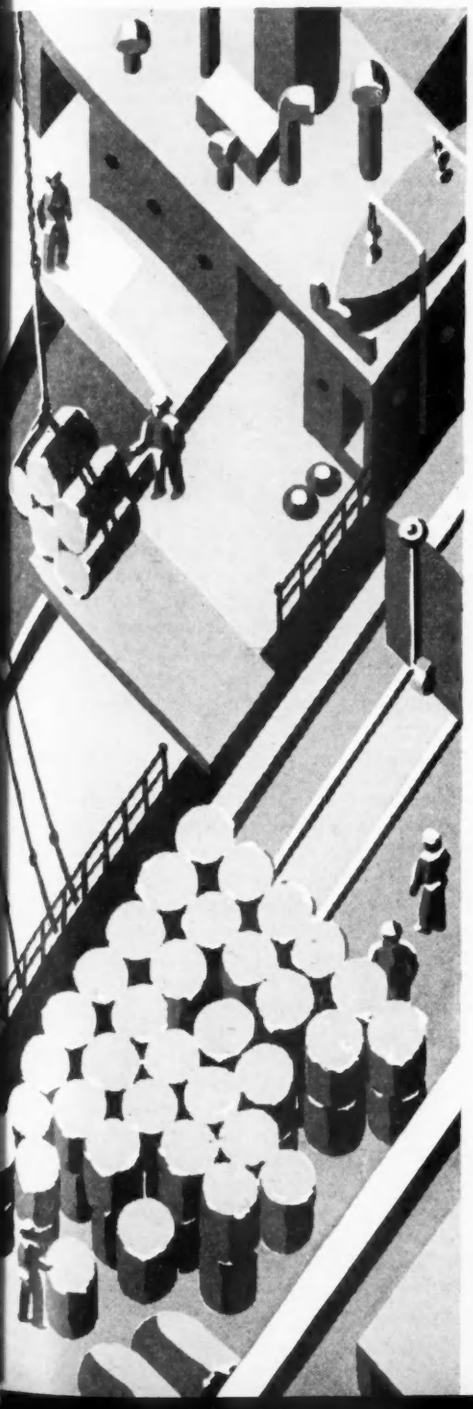
Hydraulicking

Hydraulicking with oil is done to remove sand from the hole. Hard sand bridges in the oil string can be more


3" Working Barrel
Bottom Collar
Nipple
3" Extension Shoe
(Smallest inside Diameter - 2¼")
Jet Washing Tool
Garbutt Rod (To facilitate fishing)
Collar
3"x2" Swaged Nipple
Collar
2" Standing Valve complete (Largest outside diameter - 1¾")
2" Extension Shoe
A- showing attachment of jet perforation washer to working barrel of pump
3" tubing - bull plug. 3/16" perforations
1 1/16" ball - fished out with ball socket for 2" tubing
seat faced
B - Jet Washer made from bull plug.
A
B
C
Top View
A-B-C are slots made with 1/8" slotting saw.
C - Jet Washer with annular jet.
Steel body
Collar pin
Movable Nozzle
Lock nut
Packing nut
Packing
Note:- Only one nozzle is shown. (PAT. APPD FOR)
D - Stephen's Jet Perforation Washer
(DESIGNED FOR BAD CASING AND TO BRING NOZZLES AGAINST CASING)
B-C-D- Various Jet Perforation Washers

Various types of perforation washers.

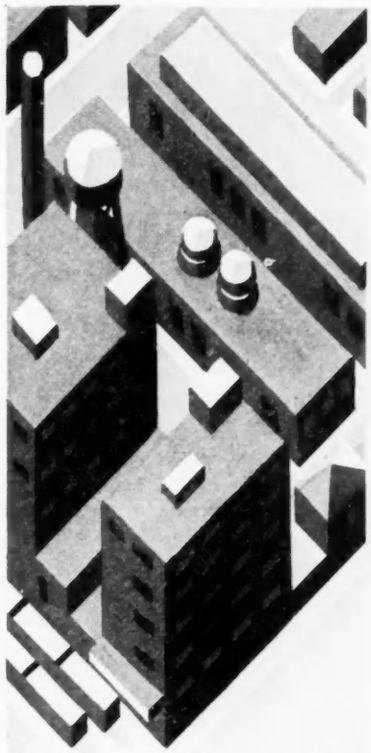
"Way down South in the land of cotton" the romance of the old South blends with the progressive sweep of industry. Glorified in song and story . . . immortalized in towering structures of stone and steel . . . cotton from "plantin' time to plantin' time" sets a gigantic chain of related industries in motion and weaves itself into the very fibre of our lives.

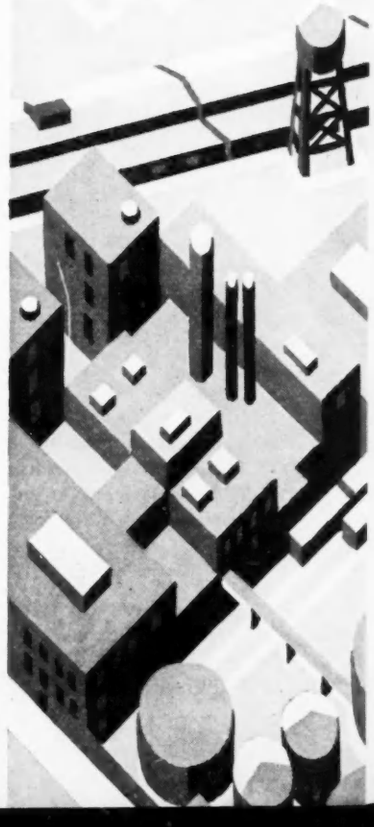


The croonin' picker in the cotton field hears the deep hoarse whistle of a freighter, cotton-laden, slipping down the channel toward a European port. Textile mills whirr and hum with the spinning and weaving that fashions for milady the season's smartest materials made of cotton. Old southern mammy's delicious cooking achieves rare heights with salad oils and shortening made from cotton seed products.

Cotton claims a distinguished social and economic position in the warp and woof of everyday life . . . turning wheels of industry . . . clothing the man on the street . . . producing wholesome vegetable oils and shortenings . . . traveling out of the port of Houston across the seven seas in an endless stream of commerce.

Houston's growth and prosperity is closely allied with the growth and development of the cotton business. As cotton has been a great factor in the rise of Houston, so it has been of major importance in the growth of the Second National Bank.





easily removed by this method and with less risk of damaging the oil string, than with cleaning out tools.

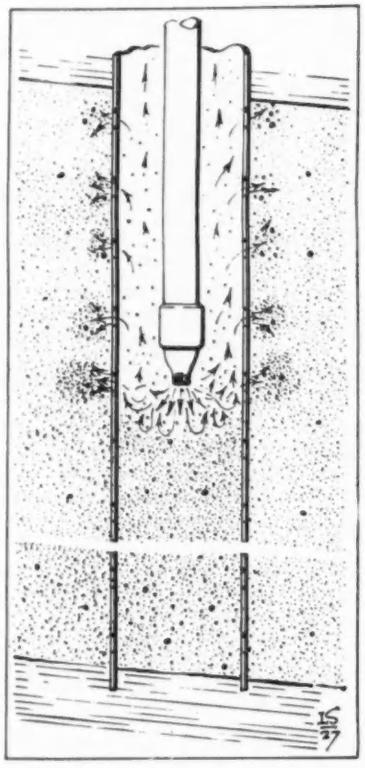
The running of cleaning out tools frequently has certain disadvantages, especially on hard sand bridges and where the pipe may be a little crooked. Under these conditions the casing is sometimes ripped or drilled through. Hydraulicking with oil has no such disadvantages.

Hydraulicking also ordinarily accomplishes the cleaning out of the sand more speedily than with cleaning out tools. Wells have been hydraulicked to bottom, bailed out, and placed on production in one day, which with cleaning out tools, required from one to two weeks' time before the sands could be removed by this method.

Sanded wells with bad casing past which the cleaning out tools cannot be run are oftentimes successfully cleaned out by this method, due to the possibility of going on down with a tubing string.

Oil Not Heated

The oil need not be heated at all for this operation, except for greater ease in handling and reduction of pump pressure. The presense of considerable sand in the hole is ordinarily sufficient evidence that the perforations are open. However, it does in some cases apparently flush out certain areas in the perforated zone with a resulting increase in the oil production of the well. Wells tending to sand up with consequent impaired oil production, or entirely off production for periods, can oftentimes be kept in better producing condition with much less time off and at less expense by the use of this treatment.



Hydraulicking sand out of hole, using nipple with small opening on end of tubing.

For the operation of hydraulicking, the pump barrel can be ordinarily left on the bottom of the tubing and, after pulling of rods, the tubing lowered to the top of the sand. The tubing is then connected to the line from the oil tank and the pump started. The tubing is lowered as the sand is hydraulicked away by the oil forced out through the bottom of the tubing. A standpipe is usually run up in the rig and the hose connection made from it to the tubing so that more than one joint of tubing can be lowered at a time before it becomes necessary to break connections and screw on more tubing. The amount of oil used will depend on the condition found in the well. It will vary from one-tenth to one barrel of oil per foot of sand removed. The oil pumped in is ordinarily speedily recovered on resuming pumping. When the sand has been cleaned out the tubing is raised to the usual pumping depth, the rods inserted and pumping started. The sand held in suspension by the oil is pumped off with the oil and necessarily there is considerable sand in the oil for awhile. This would not be done with light oil or in watered wells, as the sand would be dropped before it could be pumped out, but for fairly clean heavy oil has been found satisfactory in some cases. Some operators pull out the tubing and bail the sand from the hole. This procedure would be especially necessary in light oil territory or in watered wells. Also it is done when it is desired to change the pump.

Variations Found

There are variations of this procedure. In some cases it is necessary to pull the tubing and put a nipple on bottom with a small opening. The idea is to create more of a jetting effect, and this can be easily secured by regulating the size of the opening at the bottom of the tubing and the pump pressure. Where the sand is very hard packed it may be necessary to resort to such measures. The expense of the operation is increased when tubing is pulled, then run in for the operation, and then pulled again in order to put on the pump. The more simple procedure outlined above takes much less time and is therefore the best one to use where it will secure satisfactory results.

Results secured with Halliday perforation cleaner and by hydraulicking on groups of wells under test in a heavy gravity field with wells averaging 1000 feet in depth were as follows:

Group 21 wells with perforation cleaner and hydraulicking, practically little if any result; wells found to be producing all they were capable of producing; cost of work $1500.00; about enough increase obtained to pay for the cost of the work.

Group of three wells hydraulicked; 1629 barrels of oil secured above former rate of production at a cost of five cents per barrel.

Group of 36 wells hydraulicked; good results were obtained on 21 wells; 16,000 barrels oil secured above former rate of production at a cost of nine cents per barrel.

Group of 11 wells with perforation cleaner and a little hydraulicking; 30,000 barrels oil secured above former rate of production at a cost of five cents per barrel.

Group of four wells with perforation cleaner; 1300 barrels oil secured above former rate of production at a cost of 10 cents per barrel from one well; the other three wells were found to need reperforating and after this was done they produced more satisfactorily.

The above work was done on wells producing practically no water to moderate quantities of water. The perforation cleaner was run into several deep holes in the Los Angeles Basin but the results were not satisfactory. The field men stated that considerable trouble was experienced in trying to get it down to the oil zone. Perhaps they were unfortunate in selecting these particular wells in which to run it.

Conclusion

The methods discussed have been rather sketchily outlined. Many details and various phases of procedure have been omitted. To properly cover all the various angles would require a book.

In setting out to perform such work the operator has the cost of preparation to consider. When properties have been nearly stripped of all surface equipment, the cost of preparation may deter the operator from beginning such work. The operator must necessarily take into consideration the cost of preparation and the probable results.

This paper was intended to cover in a general way these operations. Obviously in such a short paper it is impossible to cover in detail or mention the many various tools which have been or are used. There are a number of such tools and many applications have been filed with the United States Patent office regarding them.

Acknowledgment should be made to Mr. L. Suverkrop, consulting geologist and petroleum engineer, for some of the drawnigs used for illustrating the tools.

IDEAL

"Reg. U. S. Pat. Off."

V-BELT COUNTERSHAFT

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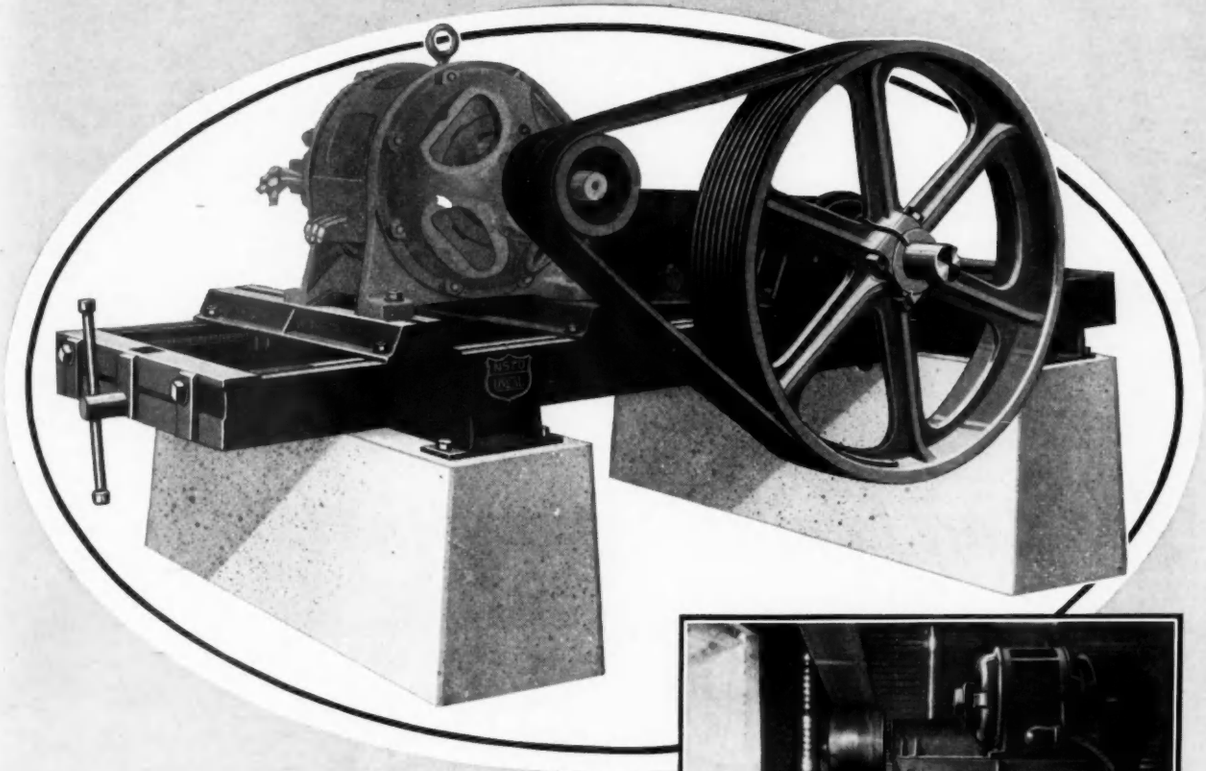

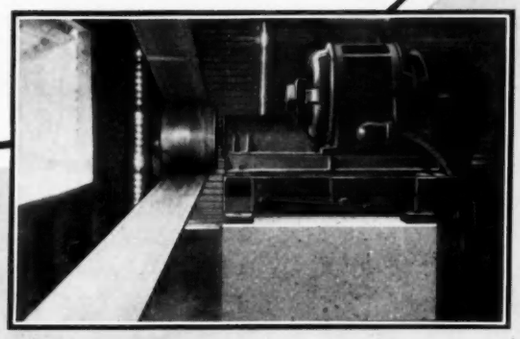

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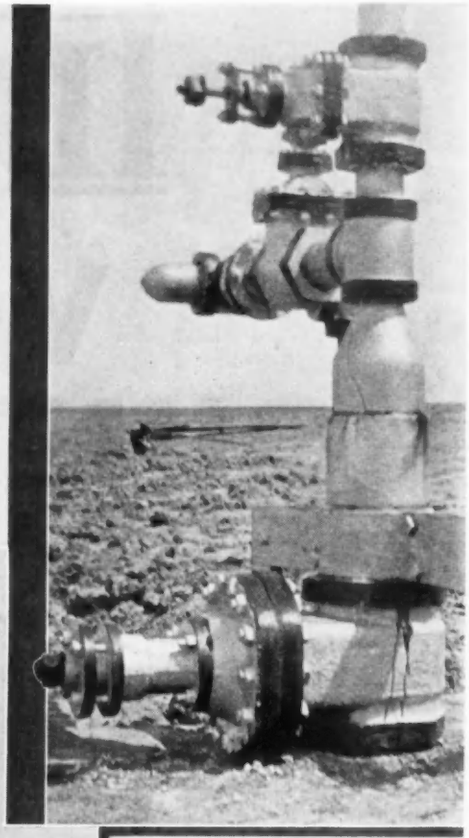

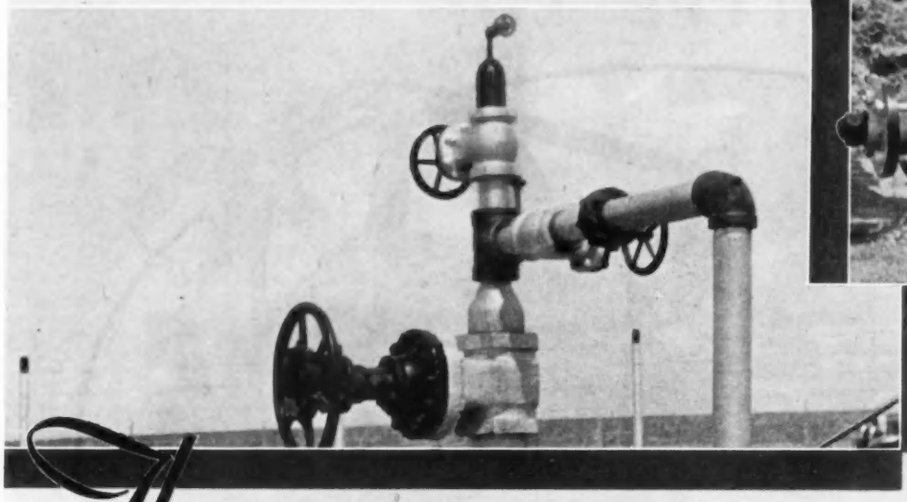

Picture above shows 42,000,000 foot gas well in Carson County, Tex. Jarecki equipment includes Fig. 1004-A, Master Gate Valve; Fig. 1002, Flow and Pinch Gates; Fig. 1000, L. E. Tees; Kew Style G. J. Flange Union.

Illustration at left shows 38,000,000 foot gas well in Carson County, Tex.—400 lb. pressure. Jarecki equipment includes Fig. 1004-A, Gate Valve with Wheel.

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German Oil Keeps Pace With Economic Stabilization

By ROY E. LEIGH
Associate Editor

GERMAN OIL production established a new high record of 1,190,000 barrels during 1930, and this record may be doubled during 1931, if the domestic refining industry can absorb additional crude supplies made available by increased drilling at Nienhagen and elsewhere in the Province of Hannover, according to a report by W. T. Daugherty, United States Trade Commissioner at Berlin.

German oil operations have been stimulated by Anton Raky's discovery of a new field near Oelheim, by the successful outcome of the operations of Gewerkschaft "Elwerath," and others at Nienhagen, by increasing domestic consumption, and by a high protective tariff, to the extent that a miniature drilling boom is now in progress; and it begins to appear that the German oil industry has received a belated stimulus which ultimately may cause it to achieve a position of world importance. Reports mention a total of some sixty-odd drilling rigs in operation in the Nienhagen, Wietze, Oberg, and other fields.

Rapid though progress has been since the economic stabilization of Germany, the oil industry has not kept pace, either with supply or demand; and, based on increasing demand and increasing production, the estimate of 2,100,000 barrels expected to be produced during the current year seems reasonably sound. Refinery construction has lagged behind the increase of production; and, despite the fact that about 95 per cent of the country's petroleum requirements must be supplied by imports from America, Venezuela, Russia, Persia, Mexico, and Roumania, German producers are in about the same boat as American operators, with congested storage and physical facilities inadequate to handle the full volume of potential production. If transport and refining facilities were available, the rate of increase of crude production doubtless would be even more rapid than at present.

A direct result of the production successes of the Elwerath company and the hopes of the Preussag organization, present owner of the acreage proven by the Raky discovery, is a proposal for the construction of a 1500-barrel refinery to be located on the Midland Canal, near Hamburg. The new refining organization will be financed jointly by the Prussian state and the Elwerath-Wintershall group. Doubtless because of its semi-nationalist character, the joint enterprise has been given a contract under which the German postoffice department is committed to purchase its output insofar as it may be needed for the operation of mail trucks and passenger busses.

German imports of petroleum products also increased substantially (24 per cent over 1929) and established a new high record of 23,450,000 barrels during 1930, of which amount 10,892,000 barrels or 46½ per cent of the total was purchased from the United States. Similar increases were recorded in German acceptance of Venezuelan and Russian oils, as indicated in the accompanying chart showing the source from which German requirements were supplied during 1930.

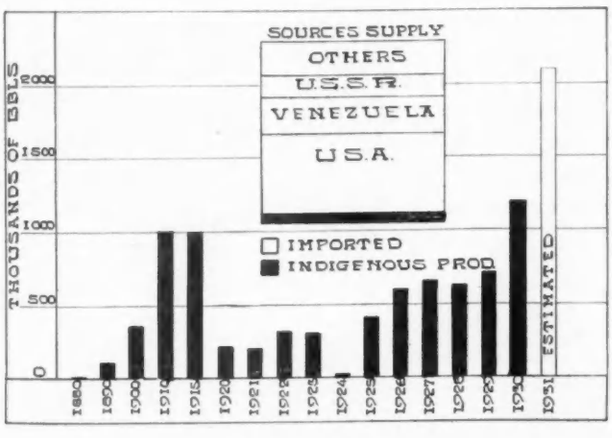
Imports of crude oil by German refiners increased by 416 per cent during 1930 as compared to 1929, and were supplied chiefly by producers in Mexico and Venezuela. This increase in consumption of oils of Mexican and Venezuelan grade is explained by the authority quoted above as resulting from the commencement of operations in two new asphalt plants owned by Rhenania Ossag and Abano-Asphaltwerke Aktien-Gesellschaft, near Hamburg.

Faith Lacking

It is said that one reason why German producers and refiners have not heretofore responded with greater celerity to

(*Continued on page 74*)

German Production and Imports Charted



Oil is the life-blood of any modern state; but it is interesting to observe how clearly the recent history of the German nation is reflected by the accompanying chart based on the statistics of oil production since exploitation was commenced on commercial scale in 1880. *During the period* 1908 *to* 1914, *when the Kaiser is said to have been preparing for war, German oil production reached a total of* 1,000,000 *barrels per annum; but, in* 1919, *after the loss of the Pechelbronn field in Alsace, it dropped to* 200,000 *barrels per annum. The year* 1924, *year of deflation, marks the ebb tide of Germany's oil industry; but economic stabilization afforded it a new opportunity to demonstrate its vitality. The "come-back" of the German people, as well as of the German oil industry, is shown by the mounting totals of the last six years.*

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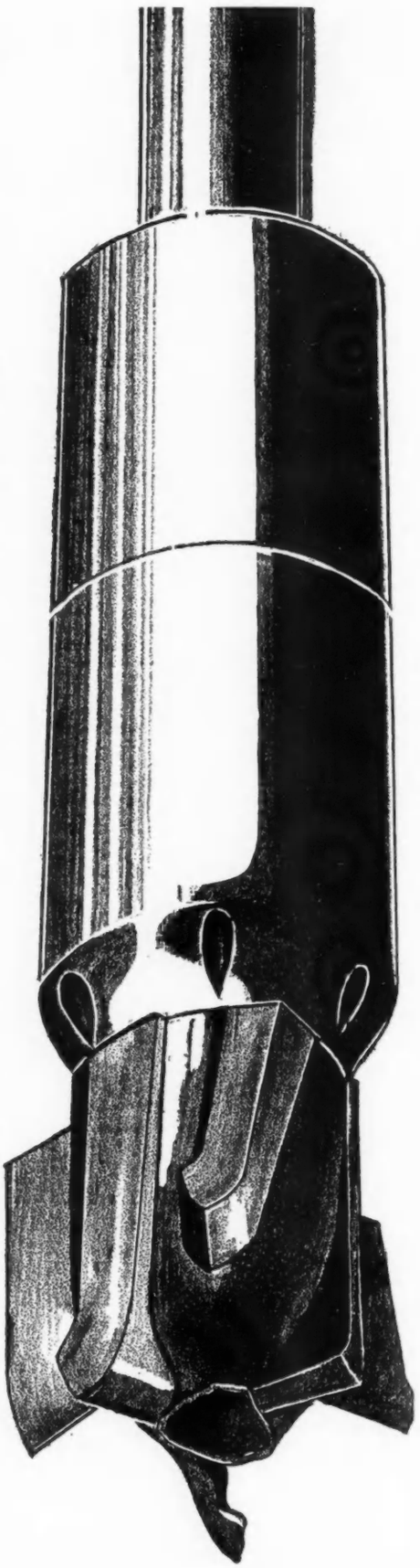

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Markets • Production • Crude Prices

H. J. STRUTH, ***Staff Economist, Houston, Texas***

Production Decline in All Areas But Mountain States

Decreased daily average production was reported by all except Rocky Mountain states last week, the net decline amounting to 41,900 barrels. The Rocky Mountain area reported a combined gain of 6750 barrels daily. While Oklahoma reported a decrease in production last week of 33,800 barrels, it is particularly significant that East Texas operators were successful in bringing about a further reduction in output that amounted to 11,450 barrels daily. As a result of the combined effect of lower production last week, the production curve dropped to a total daily average for the United States of 2,426,800 barrels.

East Texas figures for the week ending May 16 offer further evidence to show that proration is meeting with results. The combined daily output of the East Texas area for last week is reported at 257,450 barrels, compared with 339,750 barrels during the week ending May 3. This represents a total decline in the two weeks of 82,300 barrels, which is considered a good showing. The decline there has improved the situation considerably, since the excess over allowable has been brought down from 180,000 barrels daily to but 97,450 barrels daily. It is seen, therefore, that it should not take more than a few weeks to bring East Texas production down to the allowable figure of 160,000 barrels. Nevertheless, it will probably be more difficult to reduce the present excess, since a considerable portion of it represents production of several operators who have determined to fight the constitutionality of proration.

Following the announcement last week to the effect that Sinclair Refining Company posted the Mid-Continent scale of prices for East Texas oil, The Texas Company, on May 15, also adopted this scale of prices. As a result, the market situation in East Texas has been materially strengthened and this has had the effect of stimulating the crude market throughout the Mid-Continent area. Entry of The Texas Company into the East Texas crude market was marked by the completion of that company's first well there and completion of its pipe line. A survey of the crude market throughout the Mid-Continent shows that the selling of crude below posted prices has practically been abandoned. In fact, it is reported that production in some districts of Oklahoma is actually commanding a premium. This is the most encouraging news received in many months. It reflects a material improvement in demand and augurs a brighter outlook for the producer.

While production in California was down 2300 barrels last week, it is reported that operations in the Kettleman Hills area are again becoming accelerated. The number of wells now being drilled in that district indicate a period of rising crude production that may prove menacing to the otherwise improved status of the situation in California. Excess production, over allowable, in California has been reduced to but 36,000 barrels daily, while demand for crude has shown considerable improvement in the past few weeks. It is apparent, however, that any increase in production at Kettleman Hills will work to a disadvantage to the industry in California, as the stock situation there emphatically dictates even lower production than called for by the allowable.

Improvement in the production status during the past few weeks has reduced the excess output of the United States to 173,800 barrels, of which Texas is charged with 115,350 barrels, Oklahoma 69,050 barrels, and California 36,000 barrels. If the Texas Railroad Commission is successful in enforcing proration in East Texas to the point where daily production does not exceed the allowable of 160,000 barrels, it is seen that the excess output of the United States will quickly vanish. In fact, judging from the present and prospective rate of demand for crude in Oklahoma, it is believed that East Texas is practically the only area that can be charged with excessive production.

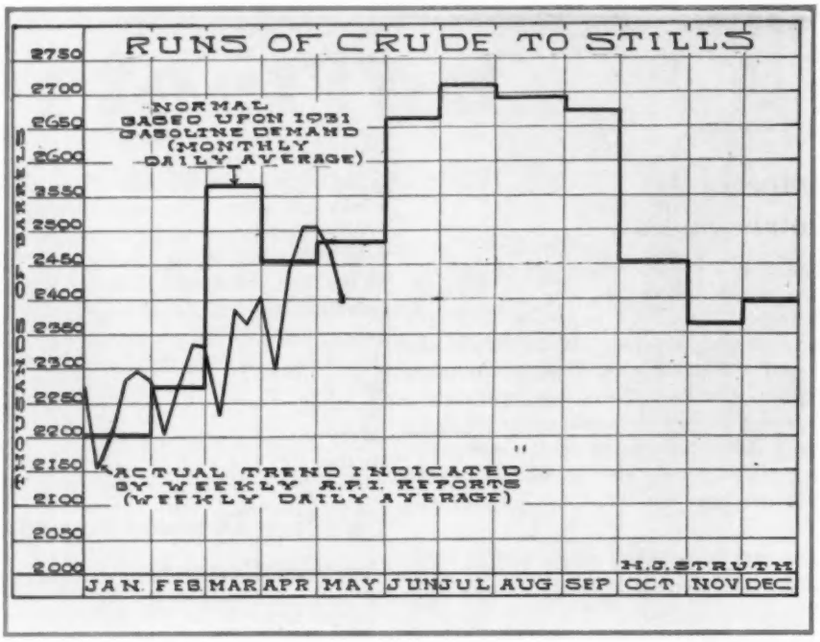
Gasoline Demand Improved As Still Runs Show Gain

Runs to stills for the week ending May 16 were sharply increased from a daily average of 2,396,000 barrels to 2,507,000 barrels, a gain of 111,000 barrels daily. Despite this gain in runs, stocks of gasoline declined from 45,810,000 barrels to 45,663,000 barrels, a net decrease for the week of 147,000 barrels. A sudden increase in gasoline stocks during the week ending May 9 was probably the natural result of a slackening in demand from jobbers, following heavy shipments of the preceding week. The fact that stocks continued their seasonal decline last week, following a larger crude throughput, seems to bear out the belief that the industry is experiencing a better demand for gasoline than expected.

Compared with the peak gasoline stock, as of March 28, of 47,444,000 barrels, last week's inventory as reported to The American Petroleum Institute represents a net decline of 1,781,000 barrels. This is apparently not far out of line with the expectancy for this period, since a normal reduction in stocks for April and May would be about 2,000,000 barrels. If the present rate of decline in gasoline stocks is maintained throughout the month of May, it is evident that the net decrease in stocks for the two months will exceed 2,000,000 barrels. It is reassuring to know that the demand for gasoline is actually in excess of expectancy. It is distressing, however, to realize that the large volume of gasoline being sold must be dumped upon the market at existing prices. Judging from the improved manufacturing program of the refineries and the resultant decline in gasoline stocks, along with a demand that is exceeding expectancy, it is evident that the underlying cause of present depressed gasoline prices is the warfare between marketing companies.

It is deplorable that marketers should ignore economics entirely and bring upon themselves the distressing situation in the retail gasoline market. Contrary to the belief that gallonage can be accelerated by cut-prices, the writer is firmly of the opinion that price is not an important factor in creating the demand for gasoline. Motor vehicles will consume a certain quantity of gasoline this year, regardless of price and those who are selling gasoline at prices which offer little or no profit are fooling no one but themselves.

MARKET SECTION



Rising Kettleman Production Threatens California Market

The rapid rise of production at Kettleman Hills and prospects of a much larger production are viewed with genuine alarm by major operators who hold that this field still constitutes a real threat. The unit plan of operation is in effect, but failure to win over various fee land operators has left the association in a weak position. Edge wells are being completed with initial flows in excess of 10,000 barrels. Several offsets are to be completed within a few weeks and a production of 100,000 barrels by August 1 is possible. Many additional wells could be completed within a short time and the field holds the key to the situation in California.

State production has climbed to 550,000 barrels, but the weekly average will fall slightly below this figure. Since an output of only 460,000 barrels is allowed by the more conservative economists, the spread has assumed a dangerous proportion. Several small fields have shown increases, the upward revision coming as the result of the favorable differential in heavy and light oil prices.

The demand for Los Angeles basin crude showed an improvement, but if Kettleman Hills shows a further increase, there will be a surplus of oil in the southern part of the state.

Crude Runs to Stills, Gasoline Stocks and Gas and Fuel Oil Stocks

Week Ending May 9, 1931

(Figures in barrels of 42 gallons)

District—	Potential Capacity Total	Potential Capacity (Daily) Reporting	Per Cent	Crude Runs to Stills Total	Daily Average	Per Cent Operated	Gasoline Stocks (see note below)	Gas & Fuel Oil Stocks
East Coast	612,700	612,700	100.0	3,095,000	442,100	72.2	8,716,000	8,375,000
Appalachian	141,300	132,500	93.8	505,000	72,100	54.4	1,691,000	1,115,000
Indiana, Illinois, Kentucky	390,800	381,000	97.5	2,358,000	336,900	88.4	6,317,000	3,622,000
Oklahoma, Kansas, Missouri	461,100	412,200	89.4	1,941,000	277,300	67.3	3,541,000	4,135,000
Texas	809,000	743,500	91.9	3,775,000	539,300	72.5	7,716,000	9,219,000
Louisiana-Arkansas	266,600	262,000	98.3	1,136,000	162,300	61.9	2,304,000	2,385,000
Rocky Mountain	150,100	139,700	93.1	373,000	53,300	38.2	1,876,000	826,000
California	898,500	887,600	98.8	3,102,000	443,100	49.9	*13,649,000	98,451,000
Total Week May 9	3,730,100	3,571,200	95.7	16,285,000	2,326,400	65.1	45,810,000	128,128,000
Total Week May 2	3,730,100	3,571,200	95.7	16,795,000	2,399,300	67.2	45,613,000	127,637,000
Total May 10, 1930	3,678,900	3,515,900	95.6	18,622,000	2,660,300	75.7	**53,433,000	**136,575,000
The Texas and Louisiana Gulf Coastal Figures Shown Below are Included Above in the Totals of their Respective districts.								
Texas Gulf Coast	529,500	529,500	100.0	2,839,000	405,600	76.6	6,612,000	6,654,000
Louisiana Gulf Coast	147,500	147,500	100.0	801,000	114,400	77.6	2,155,000	1,407,000

NOTE: In all the refining districts indicated except California, figures in this column represent gasoline stocks at refineries. In *California, they represent the total inventory of finished gasoline and engine distillate held by reporting companies wherever located within continental United States—(stocks at refineries, water terminals and all sales distributing stations, including products in transit thereto).

**Revised due to change in California.

MARKET SECTION

HOW LAST WEEK'S DAILY AVERAGE PRODUCTION COMPARES WITH NECESSARY AND NORMAL QUOTA LIMIT

State—	Indicated Demand Second Quarter 1931	Economic Limit Second Quarter 1931	Daily Average Last week	Daily Excess Last week	Daily Average Since Jan. 1	Daily Excess Since Jan. 1†
Arkansas	58,600	56,000	46,750	—9,250	48,556	—5,444
California	591,500	500,000*	536,000	36,000	530,407	30,407
Kansas	118,300	114,000	107,800	—6,200	109,828	328
Louisiana	78,900	71,000	70,500	—500	68,612	—2,388
Oklahoma	551,000	505,000*	574,050	69,050	510,471	25,471
Texas	798,700	767,000*	882,350	115,350	761,325	97,325
Balance of U. S.	254,000	240,000	209,350	—30,650	206,991	—25,509
Total	2,451,000	2,253,000	2,426,800	173,800	2,236,190	120,190

*Allowable.
†Excess based upon average allowable to date.

Oil from this new field has excellent refining qualities, and flush production is always more acceptable than oil produced in the old settled fields. Such fields as Santa Fe Springs and Long Beach may be forced to play a secondary role if the newer field continues to climb.

Export gasoline is leaving Los Angeles harbor to net back as little as 3½ cents per gallon. Out-of-state shipments are also bringing record low prices. Retail gasoline prices have shown no change, but a weaker undertone has prevailed.

Fuel oil has weakened some, following a satisfactory spring period. Increased crude production has increased fuel oil stocks.

Passage of the Sharkey Senate Bill No. 362 should ultimately control production, but it may be tied up in litigation for a year or more. It provides for a commission which actually has the power to curtail production when is passes certain limits. The townlot drilling bill which was passed a week ago prohibits drilling within a certain distance of lease lines.

Cracked Gasoline Production

Week Ending May 9, 1931

(Barrels of 42 gallons)

District	Potential Total	Charging Reporting	Capacity Per Cent	Production Total	Daily Average
East Coast	246,900	222,900	90.3	618,000	88,300
Appalachian	45,900	43,400	94.6	131,000	18,700
Ind., Ill., Ky.	294,200	280,200	95.2	672,000	96,000
Okla., Kans., Mo.	219,900	197,900	90.0	402,000	57,400
Texas	395,500	379,400	95.9	834,000	119,200
Louisiana-Arkansas	109,400	106,900	97.7	175,000	25,000
Rocky Mountain	95,100	95,100	100.0	113,000	16,100
California	182,700	182,700	100.0	244,000	34,900
Total week May 9	1,589,600	1,508,500	94.9	3,189,000	455,600
Total week May 2	1,589,600	1,508,500	94.9	3,105,000	443,600
Total May 10, 1930		Not Available			

The Texas and Louisiana Gulf Coastal Figures Shown Below are included above in the totals of their respective districts.

Texas Gulf Coast	305,000	300,500	98.5	672,000	96,000
Louisiana G. Coast	77,000	77,000	100.0	126,000	18,000

Imports of Petroleum
At Principal United States Ports

(Barrels of 42 gallons)

	Week Ended May 9	Week Ended May 2
AT ATLANTIC COAST PORTS—		
Baltimore	393,000	330,000
Boston	68,000	.....
New York	565,000	1,002,000
Philadelphia	148,000	342,000
Others	203,000	46,000
Total	1,377,000	1,720,000
Daily Average	196,714	245,714
AT GULF COAST PORTS—		
Galveston District	.....	.....
New Orleans and Baton Rouge	.....	.....
Port Arthur and Sabine District	.....	"A" 65,000
Tampa	.....	.....
Total	.....	65,000
Daily Average	.....	9,286
AT ALL UNITED STATES PORTS—		
Total	1,377,000	1,785,000
Daily Average	196,714	255,000
Daily Average Four Weeks Ended	214,679	214,679
Distribution of Total Imports Is As Follows:		
Crude	775,000	"A" 1,097,000
Gasoline	260,000	278,000
Fuel Oil	342,000	410,000
Total	1,377,000	1,785,000

"A"—Revised.

California Oil Receipts
At Atlantic and Gulf Coast Ports

(Barrels of 42 gallons)

	Week Ended May 9	Week Ended May 2
AT ATLANTIC COAST PORTS—		
Baltimore	.....	113,000
Boston	95,000	.....
New York	3,000	206,000
Philadelphia	117,000	.....
Others	.....	72,000
Total	215,000	391,000
Daily Average	30,714	55,857
AT GULF COAST PORTS—		
Total	.....	.....
Daily Average	.....	.....
AT ATLANTIC AND GULF COAST PORTS—		
Total	215,000	391,000
Daily Average	30,714	55,857
Daily Average Four Weeks Ended	53,536	52,714
Distribution of Total California Oil Receipts Is As Follows:		
AT ATLANTIC COAST PORTS—		
Gasoline	212,000	295,000
Fuel Oil	.....	96,000
Lubricants	3,000	.....
Total	215,000	391,000

MARKET SECTION

United States Daily Average Production

1930	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Arkansas	Eastern States	Rocky Mountain	California	United States Daily Av.	United States Total
April	657,050	122,200	640,950	206,800	42,100	57,800	138,700	75,950	625,700	2,576,250	77,018,100
May	663,300	131,000	662,350	203,900	39,900	53,800	137,150	82,500	623,700	2,597,700	80,529,600
June	665,550	133,600	668,300	210,500	40,300	56,900	135,750	84,600	598,000	2,593,500	77,806,900
July	594,750	121,600	652,350	209,400	40,550	55,400	137,200	98,350	610,450	2,520,050	78,121,200
August	558,850	115,650	646,400	206,600	41,500	55,100	128,550	106,000	611,250	2,470,900	76,597,600
September	558,900	116,550	606,550	200,750	40,150	53,550	121,400	110,650	604,900	2,413,400	72,402,205
October	542,100	114,850	609,500	194,850	41,500	52,800	121,750	104,000	590,800	2,372,150	73,536,350
November	491,550	111,400	579,350	190,100	44,050	52,000	116,400	101,950	601,200	2,288,000	68,639,150
December	459,300	105,550	533,400	189,300	43,000	51,100	112,200	100,500	587,450	2,181,800	67,636,500
1931											
January	452,000	106,350	511,050	188,850	41,100	50,700	110,300	96,700	535,700	2,092,750	64,874,450
February	473,750	114,450	523,700	185,600	43,950	49,950	109,800	100,100	527,300	2,128,600	59,600,450
March	531,900	110,550	585,000	177,950	40,250	47,550	108,800	95,400	528,100	2,225,500	68,990,850
April	543,650	109,250	723,050	185,850	39,050	47,000	111,500	95,500	527,350	3,382,200	71,465,750
May 2	551,050	107,400	804,500	190,050	39,050	46,850	111,700	98,000	526,500	2,475,100	17,325,700
May 9	607,850	108,600	734,100	188,700	39,800	46,950	112,350	92,050	538,300	2,468,700	17,280,900
May 16	574,050	107,800	725,750	187,300	39,800	46,750	110,550	98,800	536,000	2,426,800	16,987,200
Increase	.....	.....	.....	.....	.....	.....	.....	6,750	.....	.....	.....
Decrease	33,800	800	8,350	1,400	....	200	1,800	....	2,300	41,900	293,300

Last Week's Daily Average Production by Districts

TEXAS	May 16	May 9
Panhandle District	61,250	55,700
North Texas	56,950	57,600
West Central Texas	25,750	25,550
West Texas	207,450	212,600
East Central Texas	55,900	54,750
East Texas	257,450	268,900
Southwest Texas	61,000	59,000
Texas Gulf Coast	156,600	158,000
Total Texas	882,350	892,100
OKLAHOMA	574,050	607,850
CALIFORNIA	536,000	538,300
KANSAS	107,800	108,600

LOUISIANA	May 16	May 9
North Louisiana	39,800	39,800
Louisiana Gulf Coast	30,700	30,700
Total Louisiana	70,500	70,500
ARKANSAS	46,750	46,950
MOUNTAIN STATES		
Wyoming	42,800	41,400
Montana	8,450	8,400
Colorado	4,150	3,950
New Mexico	43,400	38,300
Total Mountain States	98,800	92,050
EASTERN STATES	110,550	112,350
TOTAL UNITED STATES	2,426,800	2,468,700

Summarized Review of Field Results

State—	Completions This week	Completions Last week	Oil Wells This week	Oil Wells Last week	Gas Wells This week	Gas Wells Last week	Failures This week	Failures Last week	Initial Prod. This week	Initial Prod. Last week
Arkansas	2	1	..	1	..	..	2	..	.....	722
California	7	13	7	13	..	..	..	..	11,460	22,200
Indiana	..	1	..	..	..	1	..	..	.....	.....
Kansas	9	9	4	4	3	2	2	3	5,240	5,795
Kentucky	1	3	..	2	..	1	1	..	.....	55
Louisiana	8	13	2	4	2	5	4	4	1,100	2,755
Michigan	1	1	1	1	..	..	..	..	500	400
Mississippi	1	..	..	..	..	..	1	..	.....	.....
New York	..	1	..	..	..	1	..	..	.....	.....
Ohio	16	10	5	4	5	4	6	2	147	79
Oklahoma	15	16	7	1	2	4	6	11	37,780	7,185
Pennsylvania	7	..	1	..	5	..	1	..	1	.....
Texas	124	111	88	80	3	4	33	27	581,550	536,535
West Virginia	12	11	2	1	8	8	2	2	2	1
Total	203	190	117	111	28	30	58	49	637,780	575,727
Increase this week	13	..	6	..	..	..	9	..	62,053	.....
Decrease this week	..	..	..	..	2	..	..	..	.....	.....

Comparison of Permits Granted for New Wells

State—	Week Ending May 16	Previous week	This week 1930	Total this month	This month 1930	Total this year	Total this date last year	1930 year total
Arkansas	..	3	4	3	8	20	45	108
California	15	10	12	40	43	165	284	922
Louisiana	6	8	34	25	72	137	425	948
Kansas	7	17	30	32	68	190	388	944
Oklahoma	15	14	69	40	234	427	1,221	2,830
Texas	90	133	173	337	562	2,033	3,048	7,052
Total	133	185	322	477	987	2,972	5,411	12,804

MARKET SECTION

Oklahoma Operators Want 550,000 Barrels as Limit

It is the recommendation of the proration committee of the Mid-Continent Oil & Gas Association that the allowable production for Oklahoma be kept at 550,000 barrels. The committee met Wednesday of last week and issued a statement, part of which was:

"The committee members were unanimously of the opinion that effective demand for Oklahoma crude for some time will not exceed 550,000 barrels per day and that present orders of the corporation commission should be extended on that basis.

"In order to give greater stability, the committee recommends that the corporation commission be requested to make its next orders extend for a period of not less than four months from June 1, with the usual flexible provisions to allow recognition of increases or decreases in demand."

Saturday of last week Stanolind Crude Oil Purchasing Company announced a reduction of 50 per cent in the amount of oil it will take from Oklahoma City. This concern had been taking in excess of 50,000 barrels daily at times recently. In the future its purchases in the Oklahoma City pool are expected to remain around 25,000 barrels daily.

Oklahoma production dropped off sharply last week to 573,425 barrels daily from the previous week when the average was 607,200 barrels. The Oklahoma City pool averaged 173,570 for the last week, against the high mark of 222,200 the week previous. The state did not yield in keeping with the Oklahoma City drop, for Seminole production moved up around 15,000 barrels for the past week.

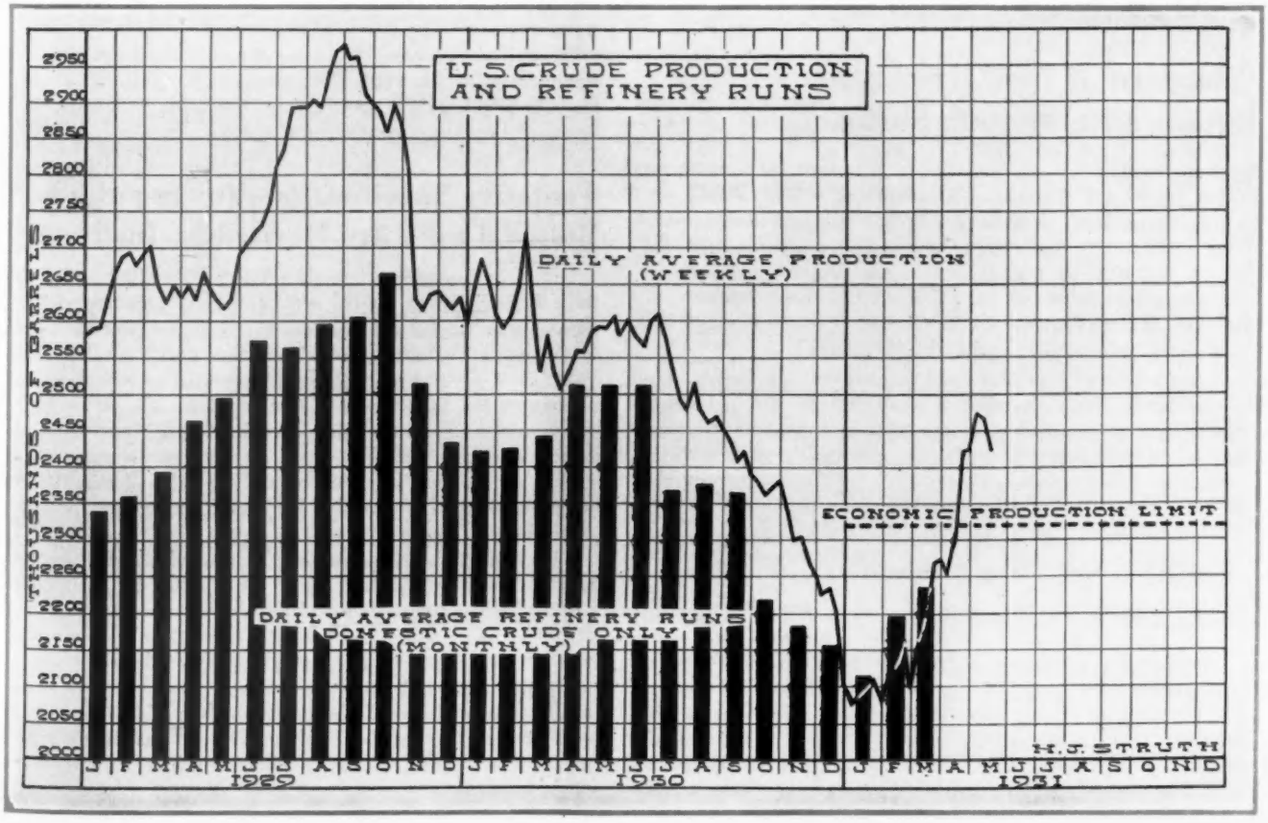
Kansas producers have filed a petition asking for increased output for the fields of that state. They contend that Kansas is having no increase in the output of its fields, while both Texas and Oklahoma are being favored on that score. Shut in production for Kansas is given as 40,000 barrels, with the Ritz-Canton area under 90 per cent proration.

Although the Oklahoma proration committee suggested no change in the total for the state, it did outline some possible changes in the manner of proration for the Oklahoma City pool. The statement sets out "that the Oklahoma City area has now been developed to a point where it is evident that there are four common sources of supply within the developed area." Accordingly the suggestion was made that these distinct sources of supply be recognized in future proration orders.

"Differences in situation and condition of these various separate pools strongly indicate that the total market outlet for the Oklahoma City area should be divided up among them in a more equitable manner; the details of such a plan to be worked out by the Oklahoma City operators."

Kansas production for the week past was at the rate of 108,300 barrels daily, a drop of less than 1000 barrels from the previous week.

New York.—Directors of The Texas Corporation, on May 19, reduced the annual dividend rate on the common stock of that company from $3.00 to $2.00 per share, cutting the quarterly dividend to 50 cents a share. Following the announcement, there was a slight increase in the market price of The Texas Corporation's common stock, signifying that the bears had depressed the price in expectation that the dividend would be omitted entirely.



MARKET SECTION

Humble Posts Lower Tariffs For New Mexico-Texas Areas

Fort Worth, Texas.—Reduced tariffs have been posted by Humble Pipe Line Company to be effective June 6, 1931, on crude shipments originating in nearly all fields in the Texas Panhandle, North, Central, West and Coastal sections of Texas, and also Lea County New Mexico. The Mexia-Corsicana and East Texas districts were omitted from the group receiving cheaper main line transportation rates to Texas points, but East Texas crude shipments moving from Van aand Longview stations to Anchorage, Louisiana, through a joint tariff with Standard Pipe Line Company, Inc., were reduced to 25 cents per barrel, or the same as that charged by the company in moving East and Central East Texas crudes to Baytown and Texas City. Other East Texas trunk lines have a 22½ cent tariff, exclusive of 10 cents gathering charge, on crude moving to their respective Texas Gulf Coast terminals.

A reduction of 7½ cents per barrel is to be made by Humble Pipe Line Company in its tariff on West Texas crude shipments, making the new rate 32½ cents per barrel. The gathering charge on moving Lea County, New Mexico, and Winkler County, Texas, crudes to the Company's West Texas terminal at McCamey, will remain at 12½ cents per barrel, but gathering charges on other West Texas fields will be cut from 12½ cents to 10 cents per barrel. The company's new tariff on Panhandle oil shipments has been cut to 37½ cents per barrel, but the gathering charge remains at 12½ cents per barrel. The new main line tariff from Wichita Falls and Ranger-Breckenridge districts to Baytown and Texas City have been reduced to 32½ cents per barrel, with a field gathering charge of 12½ cents per barrel applying on the former and 15 cents per barrel on the latter district.

Standard of New Jersey's Net Shows $78,000,000 Shrinkage

New York, N. Y.—Net profits of Standard Oil Company of New Jersey for the year 1930 amounted to $42,150,662, after taxes, depreciation, depletion, amortization, interest and proportion applicable to minority interests. This compares with a net profit for 1929 of $120,912,794, a net decline of $78,762,132. Earnings per share for 1930 amounted to $1.65, against $4.75 in 1929. After payment of dividends on common stock of $2.00 per share, there was a deficit of $8,779,024.

Total assets of Standard Oil Company of New Jersey, as of December 31, 1930, amounted to $1,770,993,803. Of that amount $46,657,382 represented cash on hand and $233,845,360 represented oil inventories. Comparison of inventory value with 1929 shows that this company charged off $31,500,000 to adjust inventory values to prevailing market prices.

Phillips Net Shows Small Loss for First Quarter

Bartlesville, Oklahoma.—Statement of Phillips Petroleum Company, covering operations for the first quarter of this year, shows earnings of over $3,000,000 after all expenses, including interest on its bonds, taxes, cost of goods sold, etc. Interest charge on the entire amount of its 5¼ per cent debentures outstanding amounts to less than $2,000,000 a year. After deducting bookkeeping charges of depletion, depreciation, etc., the first quarter showed a comparatively small loss.

Remarks of Chairman L. E. Phillips stated that gasoline is perhaps the only basic commodity in America which so far this year has shown an increase in demand. Potential over-production, which is the principal cause of the depression in this industry, was cited by Mr. Phillips as being controlled by new laws and cooperative methods. He also stated that it is reasonable to assume that the industry will return to normal or proper price levels earlier than any other business. He pointed out that the properties of Phillips Petroleum Company in Oklahoma City would, under present price structure and markets available, yield more than sufficient profit to retire the outstanding bonds.

Texas Commission Asks More Enforcing Power

Austin, Texas.—The Texas Railroad Commission May 19 urged enactment of oil legislation in a statement addressed to Governor Sterling, copies of which were placed on desks of members of the legislature.

The commission did not recommend a specific bill but pointed out that "it is obvious that the commission cannot properly or promptly enforce its orders under present laws and without funds available; consequently the waste of oil and gas in this state is enormous."

The statement further points out the necessity of some law by which the orders of the commission could be enforced while they were being attacked in courts, and of provisions for speeding up court machinery so that suits attacking proration might be speedily disposed of.

Concerning the pending East Texas injunction suits, the statement said:

"It will take months before the supreme court can decide the legal questions involved, therefore some provision should be made for collecting penalties from operators producing in defiance of the commission's orders."

Tentative Specifications for Standard Bolted Tanks Are Revised by Institute

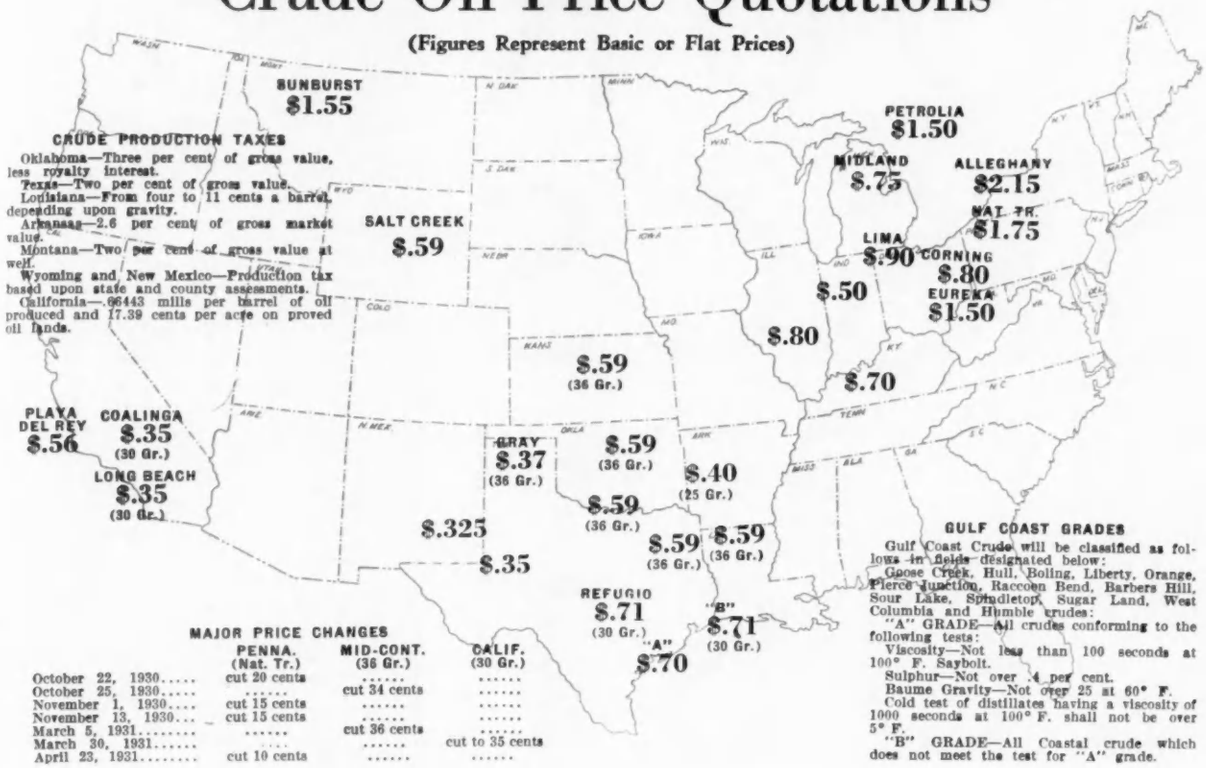
Tentative dimensional specifications for standard bolted tanks have been prepared by the Committee on Standardization of Steel Tanks for Oil Storage and issued by the American Petroleum Institute's Division of Production under date of May 1, 1931, as a revised and second edition of specifications API Standards No. 12-B issued in January, 1931.

At a meeting of the committee in Chicago last November, bolted tank specifications were discussed at length. It was agreed they should be reviewed and revised and that the right to use the API monogram on bolted tanks temporarily be rescinded.

The revised specifications will be presented for final acceptance at the mid-year meeting of the Division of Production at Dallas, Texas, June 3 and 4. Prepared for use of the oil industry in all districts of the United States, they are designed to provide for a standard series of bolted tanks comprising an adequate range and variety of sizes to meet oil field requirements, and built in accordance with modern engineering practice so that decks, bottoms and individual staves, as supplied by any manufacturer, will be readily interchangeable with those supplied by another.

Crude Oil Price Quotations

(Figures Represent Basic or Flat Prices)



MAJOR PRICE CHANGES

	PENNA. (Nat. Tr.)	MID-CONT. (36 Gr.)	CALIF. (30 Gr.)
October 22, 1930.....	cut 20 cents	.....	.....
October 25, 1930.....	.....	cut 34 cents	.....
November 1, 1930.....	cut 15 cents	.....	.....
November 13, 1930...	cut 15 cents	.....	.....
March 5, 1931.....	.....	cut 36 cents	.....
March 30, 1931.....	.....	.....	cut to 35 cents
April 23, 1931.....	cut 10 cents	.....	.....

GULF COAST GRADES

Gulf Coast Crude will be classified as follows in fields designated below:

Goose Creek, Hull, Boling, Liberty, Orange, Pierce Junction, Raccoon Bend, Barbers Hill, Sour Lake, Spindletop, Sugar Land, West Columbia and Humble crudes:

"A" GRADE—All crudes conforming to the following tests:

Viscosity—Not less than 100 seconds at 100° F. Saybolt.

Sulphur—Not over .4 per cent.

Baume Gravity—Not over 25 at 60° F.

Cold test of distillates having a viscosity of 1000 seconds at 100° F. shall not be over 5° F.

"B" GRADE—All Coastal crude which does not meet the test for "A" grade.

Official Postings and Differentials

(Revised to May 19, 1931)

California: (Prices effective March 30).

In all **Los Angeles Basin** fields (except Playa del Rey) oil from 14 gravity to 20.9 gravity is 65 cents. Deduct 3 cents for each degree up the scale to 30.9, making this the lowest at 35 cents. Fields in this group include **Alamitos Heights, Long Beach, Seal Beach, Torrance, Athens, Rosecrans, Dominguez, Santa Fe Springs, Montebello, Huntington Beach, East Coyote, Richfield and Brea-Olinda.**

Playa Del Rey: 56 cents flat, 20-26 gr.

In the **San Joaquin Valley** fields, 11 to 11.9 gravity crude is 50 cents per barrel, 14 to 14.9 gravity, 55 cents. Differential of 2 cents off each degree up the scale makes 30 gravity and above 35 cents per barrel. Fields in this group include **Coalinga, McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills and Lost Hills.**

Santa Paula 14 to 19.9 gravity, 60 cents; 20 gravity, 58 cents; 21 gravity, 56 cents, and take off 3 cents for each degree up to and including 28 gravity. **Orcutt** 14 to 19.9 gravity, 55 cents, and take off 2 cents for each degree up to and including 29 gravity which is 35 cents.

Oklahoma-Kansas-North Texas: (Effective March 5, 1931). Below 29 gravity 43 cents with differential of 2 cents to 40 and above. Magnolia Petroleum Company posts 40 cents for below 26 gravity with differential of 1 cent to 29 gravity, 43 cents. From 29 to 40 and above, same schedule as foregoing. North Texas posting applies to oil produced in **Wichita, Wilbarger, Archer,** Northern Young, Van Zandt, Mexia, Powell, Boggy Creek, Richland, Wortham, Currie.

Ranger, North Texas, Moran and Cook County oil: Below 29 gravity, 33 cents with differential of 2 cents for each degree to 40 and above which is posted at 57 cents a barrel.

Texas Panhandle: (Effective April 21, 1931).

Gray County: Below 35 gravity, 33 cents with differential of 2 cents for each degree to 40 and above which is posted at 45 cents a barrel.

Carson-Hutchinson Counties: Below 35 gravity, 30 cents with differential of 2 cents for each degree to 40 and above which is posted at 42 cents a barrel.

East Texas: (Effective March 26). Same scale of prices as Oklahoma-Kansas-North Texas.

West Texas and New Mexico: (Effective April 21, 1931).

Winkler and Pecos County, Texas: Flat price of 35 cents a barrel.

Lea County, New Mexico: flat price of 32.5 cents a barrel.

Southwest Texas: (Effective April 21, 1931).

Refugio Heavy: Below 25 gravity 60 cents a barrel. **Refugio Light:** 25-25.9 gravity 61 cents with differential of 2 cents for each degree to 35 and above which is posted at 81 cents a barrel. **Mirando Crude:** 60 cents. **Salt Flat:** 53 cents. **Darst Creek:** 53 cents. **Pettus:** 75 cents. **Luling:** 38 cents; **Corsicana Heavy** 38 cents.

Gulf Coast: (Effective April 21, 1931).

Grade "A": 70 cents a barrel. **Grade "B":** Below 25 gravity 60 cents a barrel; 25-25.9, 61 cents with differential of 2 cents for each degree to 35 and above which is posted at 81 cents a barrel. **High Island,** 75 cents; **Jennings,** 80 cents; **Markham,** 50 cents.

North Louisiana and Arkansas.

Pine Island, Haynesville, Bull Bayou, El Dorado, Cotton Valley, Zwolle: Below 29, 43 cents with differential of 2 cents to 40 and above. Magnolia Petroleum Company posts 40 cents for below 26 gravity with 1 cent differential to 29 gravity, 43 cents. From 29 to 40 and above, same schedule as foregoing. **Stephens:** Below 29, 54 cents with differential of 4 cents to 32 and above. **Smackover,** 45 cents; **El Dorado east field** 70 cents; **Bellevue,** 45 cents.

Rocky Mountain States. (Effective Mar. 10, 1931).

Salt Creek: 29-29.9 gravity 45 cents with differential of 2 cents to 37 and above. **Elk Basin and Grass Creek,** 90 cents; **Big Muddy,** 65 cents; **Lance Creek,** 98 cents; **Rock Creek** 66 cents; **Mule Creek,** $1.20; **Rex Lake,** $1.10; **Osage,** 50 cents; **Cat Creek,** $1.25; **Pondera,** $1.45; **Sunburst,** $1.55; **Hogback, N. M.,** $1.40.

Eastern States. (Effective Mar. 10, 1931).

Bradford, Allegany district, $2.15; **National Transit oil,** $1.75; **Southwest Pennsylvania oil,** $1.60; **Eureka P. L. (W. Va.)** $1.50; **Buckeye P. L. oil,** $1.25; **Corning crude,** $1.15; **Somerset in Eureka Lines, 75 cents; Ragland,** 60 cents; **Oil City, Ky.,** 70 cents.

Michigan—Midland, $1.10; **Muskegon,** below 29 gravity, 65 cents with differential of 4 cents to 35 gravity; 31-31.9, 92 cents with 3 cent differential to 44 gravity and above.

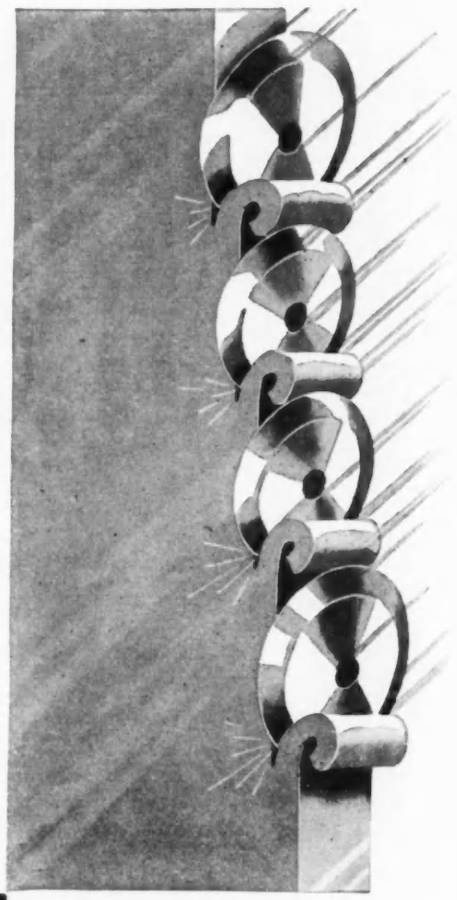
Central States: (Effective March 5, 1931).

Wooster, 99 cents; **Lima,** 90 cents; **Waterloo,** $1.20; **Indiana,** 50 cents; **Princeton,** 80 cents; **Illinois,** 80 cents; **Western Kentucky,** 75 cents.

Canada: (Effective October 28, 1930).

Petrolia, $1.50; **Oil Springs,** $1.57.

FOUR DISCS CUT DOWN COST



The Guiberson Four Disc Reaming Rotary Bit makes amazing speed, cutting drilling time almost in half and paring down the cost per foot in great slices.

This bit drills a straight hole, by constant tests, and although not intended as a hard rock bit, will cut through intervening rock shells, eliminating the necessity of pull-outs to change bits.

The Guiberson Four Disc Reaming Rotary Bit holds its enviable position as a matter of record and through enthusiastic drillers' endorsements wherever it is used.

Fully Patented

Four discs cut up material more finely for flushing from well. Two inner discs cut up core which gives trouble with two disc bit, impeding free roll and wearing cutters flat.

Axis is offset from true radius of bit, so that discs have full circumferential travel. Inside and outside cutters are on different axes, so spaces between them are kept clean by revolution of cutters.

Reamers in side plates ream full size; no further reaming nesessary.

Water flush holes extend to bottom of bit, keeping bottom of hole clean and flushing cutters.

Head of bit is flat on two sides, providing ample passage for water and cuttings. Due to speed of bit, efficient, large capacity pumps are recommended.

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GUIBERSON

BETTER BE SAFE THAN SORRY

Supreme Court Upholds Government Land Ruling

Washington, D. C.—The United States Supreme Court May 18 affirmed judgments of the court of appeals of the District of Columbia holding that the Secretary of the Interior was within his authority in refusing to issue prospecting permits for oil and gas under Section 13 of the general leasing act.

Reciting the provisions of the act, the court pointed out that they "quite plainly indicate that congress held in mind the distinction between a positive mandate to the secretary and permission to take certain action in his discretion." Examination of the act, the court continued, shows "there is ground for a plausible, if not conclusive, argument that so far as it relates to the leasing of oil lands it goes no further than to empower the secretary to execute leases which, exercising a reasonable discretion, he may think would promote the public welfare.

"It is unnecessary now to declare the precise meaning of the relevant provisions of the act. It was passed when, according to a widely accepted view, decline of petroleum production in the United States was imminent."

Announcement of the court's decision was received with considerable pleasure at the interior department where it was pointed out by Secretary Wilbur the government now can take a fixed position in the "orderly method of development of national resources." The decision, he declared, should be an incentive to the states now contemplating an interstate compact to include therein drilling operations as well as production, to eliminate waste and at the same time help in solving the industry's over-production problem.

Requa Answers Borah on Government Price Control

New York.—Industrial self-regulation, with government authority to make that regulation effective when it is proved to be in the public interest, is the only sovereign panacea for the difficulties of the petroleum industry, Mark L. Requa, former national fuel administrator, pointed out in a night letter sent to Senator William E. Borah, April 13 in answer to a statement made by Senator Borah that the government should devise a price control of petroleum and its products. The letter follows:

"Papers here today (April 13), carry your statement proposing government price control of petroleum and its products. It is curious fact, but true, that the theory and practice of control so successfully worked out by the oil division of the United States Fuel Administration and National Petroleum War Service Committee during the World War has apparently been given little or no consideration as the correct method for solving present most unsatisfactory conditions in the industry both from the standpoint of the government and the industry. Industrial self-regulation, with government authority administered by the government to make that regulation effective when it is proved to be in the national interest, is the only sovereign panacea. In place of that there has been untrammeled individual effort, cut-throat competition, tragic waste of a great natural resource because of governmental inhibition, with resulting industrial chaos and unwise, fruitless and often ignorant and terroristic investigations and suggestions by senators and senate committees that have accomplished nothing constructive, but rather have promoted fear, resentment and distrust on the part of the industry, with added turmoil to an already too tumultuous situation.

"Any proposal, to be effective, must leave wide discretion to the industry in working out details and practices and must make available the authority of government to make these practices effective when government finds them to be in the national interest. In appointing the Federal Oil Conservation Board, President Coolidge used the following language:

"'The oil industry itself might be permitted to determine its own future. That future might be left in simple working of the law of supply and demand but for the patent fact that the oil industry's welfare is so intimately linked with the industrial prosperity and safety of the whole people that government and business can well join forces to work out this problem of practical conservation.'

"Any attempt by government to lay down hard and fast rules in an effort to anticipate every contingency that might arise is foredoomed to failure. The range of production cost as between the new and gigantic wells of high gravity oil upon the one hand and the old and very small producers in fields that have long since passed their zenith is so great as to make any general rule impossible of application. The problem varies from state to state, from field to field, and perhaps even from well to well. What will be beneficial in one place will be useless in another. Attempting, therefore, to provide by statute for the execution of a conservation program would be like attempting by statute to instruct judges how to decide law suits.

"Since the World War the petroleum industry never has been given full opportunity to prove its ability to co-operate and conserve, and until it has been given that opportunity it should not be indicted for failure to promote the national welfare by performing acts that are illegal under existing statutes. It will be time to propose rigid and mandatory government control when industrial self-government made effective by government cooperation has proved a failure, and it will not prove a failure if opportunity is afforded the industry to prove its success.

"Since the World War I have frequently pointed out the philosophy of this method of co-operative action between the government and the industry, beginning with a memorandum written in December, 1918, and ending with proposals presented at the federal and states petroleum conservation congress at Colorado Springs in June, 1921. I have already filed with you by letter much of this data. Suffice it to say at this time that because of dual federal and state control there is required as a prerequisite a compact between the oil producing states and the approval of that compact by congress and the delegation by congress of federal authority similar to that delegated to the shipping board under the Shipping Board Act and to the Interstate Commerce Commission under the Transportation Act of 1920.

"Your Denver speech of June, 1927, admirably sets forth the need for rational action in behalf of sane conservation. You point out that 'it constitutes about the most important problem which could present itself in the growth and development of the country.' My experience as director of the oil division of the United States Fuel Administration during the war and study of the problem over the past 10 years convinces me that the procedure as above outlined is not only practicable, but highly desirable from the standpoint of both the national welfare and the welfare of the petroleum industry. It is certain we cannot go on indefinitely as we have been save an unnecessary jeopardy of the welfare of the nation, the public, and the

petroleum industry. Nor can the government justify untried theories in the fact of the experience gained through the joint activities of the oil division and the National Petroleum War Service Committee during the World War.

"The problem is simple if approached with proper understanding, but infinitely complex and hopeless of successful solution if approached without full knowledge of all of the varying factors and the proved success of the World War joint government and industrial control."

Gas Association Told Of New Market for Gas

Memphis, Tennessee.—A new market for gas, and one that does not conflict with any other form of fuel, was suggested by Eugene D. Milener, industrial research representative of the American Gas Association, to those in attendance at the convention of the association held here May 11 to 14. This market is represented by the possible use of gas as a means of house cooling and air conditioning, which has already passed the laboratory and experimental stages, and will be given a field test in three widely separated locations this summer.

Mr. Milener's paper was read near the close of the second day's session.

The morning of the third day was given over to a drilling symposium, each speaker following a prescribed outline, and presenting information relative to the section he represented. The three speakers were: J. French Robinson, Hope Natural Gas Company, Pittsburgh, representing the East; B. M. Nowery, United Gas Public Service Company, Houston, representing the Mid-Continent; and L. M. Spencer, Southern California Gas Company, Los Angeles, representing the Pacific Coast.

In the afternoon considerable discussion centered around leakage. It was shown that all companies, despite a large available supply, are doing all in their power to conserve the supply by cutting down leakage in all departments.

The final session, Thursday morning, May 14, was given over to a production symposium with the following speakers: S. W. Meals, Carnegie Natural Gas Company, Pittsburgh, representing the East; R. M. Stuntz, Cities Service Gas Company, Bartlesville, Oklahoma, representing the Mid-Continent; and Wm. Moeller, Jr., Southern California Gas Company, Los Angeles, representing the Pacific Coast.

The attendance including many unregistered, was well over 1000. No city was chosen for the next year's meeting, but it is thought that Tulsa will be the meeting place, along with the oil show in May. Definite announcement will be made in the fall.

New York.—The April, 1931, issue of the American Petroleum Institute's "Quarterly," recently mailed to members, contains a list of books, special bulletins, standardization specifications, annual meeting proceedings, codes, posters and other material published by the institute, with dates of publication and prices.

The "Quarterly" presents also the provisional program for the mid-year meeting of the Division of Production, to be held in the Baker Hotel at Dallas, Texas, June 3 and 4, as well as reports of the mid-year meetings of the Division of Refining and Marketing held earlier this year. There are reports also of district and chapter meetings of the Division of Production, and of other institute activities.

More Suits Threatening East Texas Proration

Tyler, Texas.—Violaters of proration orders in East Texas increased in numbers during the past week, and unless definite court action results promtply from cross-suits now pending in the form of injunctions filed by operators and the Texas Railroad Commission there is danger of all production restrictions being cast aside. During the first full week of proration period the three areas produced an average of 254,450 barrels daily, or about 59 per cent in excess of the 160,000 barrels maximum daily quota allotted the district by the commission's proration orders.

More than a score of well owners are producing all or part of their properties in excess of proration allowables, and existing legal power behind the commission in dealing with proration jumpers is admittedly inadequate. However, sponsors of proration are lending every effort to have passed by the state legislature the so-called Howsley Bill No. 1052, which will equip the commission with adequate power to regulate production. Without the backing of such legislation it is expected that the commission will be severely handicapped by injunctions in trying to curb production in East Texas, and there is immediate danger of proration being discarded soon after the defeat of the bill. Conditions would then become serious from a transportation and price standpoint in East Texas, and relief would have to be sought by the majority of those now opposing proration, in other words there is a possibility of a complete collapse of the crude market structure in East Texas taking place, then the surviving companies would be free to work in harmony in developing the undrilled acres and producing the oil ratably.

Kilgore section of East Texas is the worst violater of proration, having averaged 116,400 barrels daily during the week ending May 13, while allowable production was only 60,000 barrels daily during the period. The Joiner field was granted a proration quota of 65,000 barrels daily, but during the first full week of proration averaged 92,500 barrels daily.

The Longview field is abiding by proration fairly good through having averaged 13,550 barrels daily in excess of the 35,000 barrel daily allowance during the past week. Longview field's new proration figures show 68 completed wells, rated at 153,215 barrels daily potential when gauged through 11/16-inch choke.

In fairness to lease owners that desire to prorate but are offset by wells flowing without restrictions, the proration advisory committee has allowed Ray Richmond, head of the proration enforcement staff of the state, to instruct such operators to open up wells in proportion to that of neighbors. Such a policy prevails in West Texas and the Texas Panhandle, and automatically contributes to higher production.

Van Der Woude President Shell Petroleum Corporation

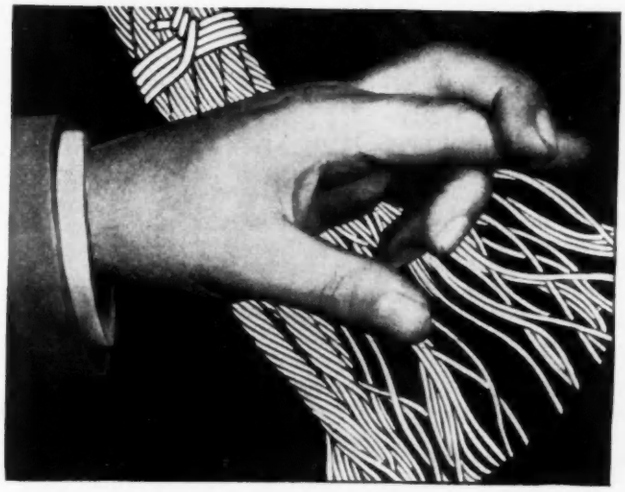
St. Louis, Mo.—R. G. A. Van Der Woude has been appointed president of Shell Petroleum Corporation to succeed U. de B. Daly who resigned April 11, according to announcement made May 19. Mr. Van Der Woude has been connected with the Royal Dutch-Shell group in various capacities for about 25 years. The earlier years of his employment with the company were spent as local manager at Shanghai for Asiatic Petroleum Company later spending a part of his time in the United States. During the past few years he has been stationed in Mexico and The Hague, Holland.

TRU-LAY

• starts an all-time ton-mile record!

At 4,760 feet a TRU-LAY 1″ wire line was installed on Union Sulphur Co.'s Fee 762 at Sulphur, La. At 9,250 feet it was decided to plug back the hole after the TRU-LAY line had made 185 round trips. Not a single wire in the line was broken. It will easily spud in another well and handle the job to 4,760 feet, the depth at which it started on Fee 762. If this sounds like a wire-line romance, you just haven't had the proper social introduction to TRU-LAY. Apply at our Shreveport plant, or at any branch.

Above: **your fingers together like this show how naturally the pre-formed elements snuggle together in TRU-LAY.** ***Below:*** **your fingers crossed demonstrate the strain in ordinary line. Incidentally, you don't cross your fingers on any job after you know TRU-LAY.**



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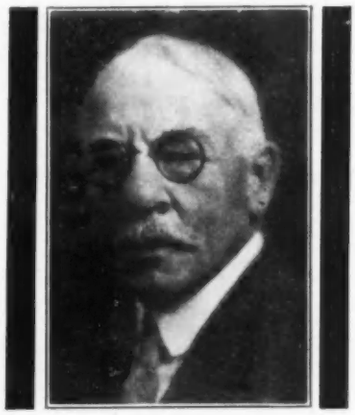

E. W. Clark

E. W. Clark, chairman of the board of Union Oil Company and twice president of the American Petroleum Institute, died suddenly from a heart attack in Los Angeles, Tuesday, May 12. He was 73 years old, but remained active to the end.

Mr. Clark was born in New Hampshire in 1857 and was a well known official of the Northern Pacific and Great Northern railroads between 1888 and 1897. He started in the oil business in 1910 as manager of Producers' Transportation Company and was elected a vice-president of Union Oil Company four years later. He became general manager of the company in 1916, later was elected executive vice-president, and was chairman of the board at the time of his death. He was president of the American Petroleum Institute during 1927 and 1928.

He is survived by his widow. Funeral services were held Friday morning, May 15, company offices remaining closed during the entire day.

A. M. Butcher

Recently named Purchasing Agent of Indian Territory Illuminating Oil Company at Bartlesville, Oklahoma, succeeding Mr. Muir.

Rear Admiral F. T. Chambers (CEC) U. S. N., director of naval petroleum reserves, recently visited the Teapot Dome reserve and the Salt Creek field, in company with the inspector of petroleum and oil shale reserves in Colorado, Utah, and Wyoming, Commander A. A. Baker, (CEC).

Louis B. (Tip) O'Neil, well known oil and gas operator in Montana, has been made a director and vice president in charge of natural gas production of Montana Power Company.

J. Frank Drake, president of Gulf Oil Corporation, and W. V. Hartman, vice-president of Gulf Refining Company, both of Pittsburgh, Pennsylvania, were in Houston the past week on a business trip.

W. J. Franier

Superintendent of operations for Rio Grande Oil Company.

L. L. Brundred, well known petroleum engineer, addressed the California Natural Gasoline Association, at the regular meeting, May 14, on the Kettleman Hills unit plan. He traced the progress of the plan now in operation from its inception to final adoption.

Alfred D. Bumescu

Field Superintendent for Concordia Company, Moreni, Roumania, who has been visiting the Permanent Oil Equipment and Engineering Exposition.

Martin Van Couvering, consulting petroleum engineer and a member of the board of economics of the Federal Oil Commission, has returned to Los Angeles, following an extended Eastern trip. He was appointed by Secretary Wilbur.

H. H. Clark, sales manager for Baash-Ross Tool Company of Los Angeles, is on an extended tour of Mid-Continent fields.

Dr. Robert T. Hill, consulting geologist of Dallas, and to whom is attributed the naming of the Woodbine sand, was the main speaker at the annual meeting of the Marshall, Texas, chamber of commerce Friday night, May 15. Dr. Hill condemned Harrison County as a Woodbine sand producing area and held out little encouragement for Blossom production in the border counties of East Texas. He did say, however, that the Trinity in these counties had producing potentialties. He also added that the north and south sides of the Sabine Uplift provided good "hunting grounds" for Woodbine sand production.

TRANSIT'S Chief Engineer

JEFF M. SHARP

MR. SHARP has probably had a broader pump experience than any other individual. Starting as a machinist's helper after his university education in mechanical engineering, he has worked continually for prominent pump manufacturing concerns.

Years spent in designing, selling, installing and testing pumps have given him an insight into hydraulics, which has been much sought in the solution of pumping problems.

Mr. Sharp's services have always been at the command of our customers and prospective customers. He will now be free to devote more time than ever to this phase of his work.

Section of Engineering Department

REFINERY PUMPS
FOR HOT OIL
and every other refinery service
PIPE LINE PUMPS
FIELD PUMPS

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E. L. Wilson Hardware Company
SALT LAKE CITY, UTAH
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NATIONAL TRANSIT
PUMP & MACHINE CO.
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NEW YORK PHILADELPHIA CLEVELAND PITTSBURGH LOS ANGELES HOUSTON TULSA NEW ORLEANS

PHOENIX, ARIZ.
Pratt-Gilbert Co.
LOS ANGELES
Republic Supply Company of California
ST. LOUIS, MO.
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GAS ENGINES
GAS ENGINE GAS COMPRESSORS
TOOLS
for Pipe Line Construction

Oil and Gas Pipe Line Activities

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Explosive Men Develop River Crossing Methods

Explosives play an important part in attaining the speed with which modern pipe lines are laid. In addition to the obvious use of blasting the trench through solid rock, explosives are used to bury pipe under rivers.

Three systems have been recommended by the pipe line service men of E. I. du Pont de Nemours & Company, Wilmington, Delaware, for the shooting of rivers. In rock the bottom has to be drilled; in firm mud a bar can be used; but under water a pipe and bar should be employed. Where it is necessary to shoot rock in water, gelatin dynamite and electric blasting caps are employed.

For example, in crossing the Trinity River in East Texas, during the laying of a recent line, government specifications called for pipe to be laid four feet below the river bed. The water at this specific point was 12 feet deep and the river was 200 feet across, with a current too swift to load through pipes. It was necessary to develop an unusual method as follows:

A cable was stretched across the line of trench; and to this line bundles of five sticks of dynamite were attached end to end on the cable all the way across. Small boulders were attached every 10 feet and the string of dynamite was lowered into place from a raft. The resultant shot provided a trench five feet in depth.

Then again in making a crossing over the Colorado River at a point 260 feet wide and 12 feet deep, a drop punch earth socket was used to drill the holes in preparation for blasting. The river bed was of solid shale, and the line had to be laid four feet below the bed level. Casings were set from a raft and the holes drilled 12 feet deep, 20 feet apart. Three holes were shot at a time, resulting in a trench 4½ feet deep at the banks and 7½ feet deep in the middle of the stream.

Barnsdall-Muskogee Section Of Great Lakes Line Ready

Tulsa.—Movement of gasoline through the Barnsdall-Muskogee section of Great Lakes Pipe Line Company's system is awaiting completion of stations at West Tulsa, Okmulgee, and Muskogee. The two former sites should be completed by June 1 and the latter shortly thereafter. No statement has been issued as to the intention of the company. It may start running from Okmulgee to Barnsdall as soon as the stations are completed or it may wait and start the entire length of the section at the same time.

Southwestern Construction Company, which had the contract for line construction between Barnsdall and Muskogee, completed work ahead of schedule and nothing is left to be done except to furnish motive power for gasoline which will move from Barnsdall Oil Corporation's 10,000-barrel plant and Phillips Petroleum Company's 5000-barrel plant at Okmulgee, Pure Oil Company's 13,000-barrel plant at Muskogee, and Mid-Continent Petroleum Corporation's 40,000-barrel plant at Tulsa.

One important change has been made in the plan. It was originally intended to build a 70-mile, four-inch spur from the main line to the El Dorado, Kansas, refinery of Skelly Oil Company. Since Phillips Pipe Line Company's eight-inch gasoline carrier from Borger, Texas, to St. Louis passes within six miles of the Skelly plant at El Dorado it has been decided to build a six-inch line between these two points and Phillips Pipe Line Company will deliver Skelly gasoline to the Kansas City terminal of the Great Lakes Pipe Line Company.

Phillips Line Moving Gasoline to St. Louis

Borger, Texas.—Pumping of gasoline direct from Borger to the Kansas City and East St. Louis terminals of Phillips Pipe Line Company's system is scheduled to take place about June 1. Gasoline has been moving northeast from Borger as far as Wichita, Kansas, since March 16. Construction work on the remainder of the line will be completed late this week. The main line consists of 681 miles of eight-inch welded pipe, with a 52-mile, six-inch lateral extending north from the main line to Kansas City. Nine main line stations have been installed on this long gasoline line.

Another 10-Car Rack

Tyler, Texas.—Texas Pacific Coal & Oil Company is erecting a 10-car capacity tank car rack on the Texas & Pacific Railroad between Camps and Gladewater, with 5700 feet of four-inch line connecting to outpost producer completed late last week in the Longview field on fee land. Crude shipments will be made to the company's refinery at Fort Worth.

—Photo courtesy The Lincoln Electric Company, Cleveland, Ohio.

Fleetwelding a difficult bell hole joint on 20" pipe line 100 miles long in Texas oil and gas fields. Helper on opposite side is cleaning preceding bead with wire brush.

Oklahoma--Kansas Field Notes

FLOYD SWINDELL, *Staff Representative, Tulsa, Oklahoma*

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Test Near Seminole City Pool Finally Abandoned

Seminole, Oklahoma.—Disappointment was expressed among oil men of the Seminole district when George E. Burgher announced that he would abandon Earls 1, NE SE NW Section 33-9n-6e, located between the Seminole City pool and the 29-9n-6e area. Top of the Viola lime was encountered at 4170 feet and top of the Simpson formation at 4212 feet indicating that it probably was structurally high enough to produce. While drilling at 4246 feet in Simpson drill pipe was twisted off and a difficult fishing job resulted. According to reports the drill pipe was engaged with an overshot but in trying to pull out the string pulled apart allowing the "fish" to drop back and come to rest alongside the other part of the drill string. This prevented the use of the ordinary overshot and every type of fishing tool known to the industry for this condition was tried to no avail. After five weeks of fishing it was decided that no success would be attained and the test was abandoned. However, Mr. Burgher believes that he was on top of the Wilcox sand at the time of twisting off and has announced location for Earls 2, 550 feet west of Earls 1.

Another test in the district went on the hard luck report when Magnolia Petroleum Company lost drill pipe in its Powell 1, NW SW SE Section 15-6n-7e, two miles west of Sasakwa in Seminole County. The well was drilling at 4430 feet in Sylvan shale at the time of loosing the pipe after having encountered Mayes lime at 4040 feet, Woodford shale at 4140 feet, and Hunton lime at 4280 feet.

Pace Petroleum Company and A. J. Diffie's Caesar 1, SE NW SE Section 29-6n-6e, on the south end of the Konawa pool, was drilling plug at 2470 feet and having some trouble with the 6⅝-inch casing which is set at 2500 feet. This test is one location north of Magnolia Petroleum Company's dry hole which defined the south end of the productive area.

Three Car City Wells Are Drilling Below Mayes Lime

Tulsa.—Three wells in the Carr City pool are drilling below the Mayes lime and due for completion during the next 15 days. Prairie Oil & Gas Company and T. B. Slick Estate set 8¼-inch casing at 3894 feet and were rigging up standard tools at their Hyde 6, NW SE NW Section 2-8s-5e. It is the next well due for completion. Amerada Petroleum Corporation topped the Mayes lime at 3728 feet and was drilling below 3790 feet in its Tiger 1, NE NW SE Section 3-8n-5e, and Tiger 2, north offset to Tiger 1, had top of the same formation at 3720 feet and was drilling at 3753 feet. Empire Oil & Refining Company's Brown 3, NW NE SE Section 3-8n-5e, east offset to Amerada's Tiger 1, encountered Mayes at 3723 feet and was drilling below 3745 feet. All are in the north edge of the pool.

Twin State Oil Company's Archer 5, SW NE SE Section 22-6n-3e, in the western portion of the Wanette pool, topped the Belle City lime at 2409 feet and was drilling below 2475 feet. In the Beebee area Lynch et al had Hunton lime at 2074 feet and were drilling below 2080 feet with a show of gas in their Newby 1, SE NE NE Section 24-5n-4e, on the northwest edge of production.

Amerada Petroleum Corporation and Droppleman Drilling Company were rigging up standard tools in their Jones 1, SE SE NW Section 21-8n-3e, one mile northeast of Macomb in Pottawatomie County. Hunton lime was encountered at 4645 feet and drilled to 4775 feet which is the present total depth; 6⅝-inch casing was set at 4640 feet. Amerada Petroleum Corporation has recently taken over operations on this test.

A few feet of drilling may be a dangerous thing under certain conditions but Magnolia Petroleum Company demonstrated that it may also work wonders in the way of increasing production. The company's Waggoner 1, NW NW NE Section 18-14n-4e, was good for 648 barrels in 24 hours at a depth of 4968 feet last week. Drilled an additional three feet during the past week, it made 758 barrels in nine hours. The same operator stopped temporarily at 4984 feet where its Telford 2, NW SW SE Section 7-14n-4e, produced 172 barrels in two hours. It was drilled deeper to 4989 feet with a resulting production of 4188 barrels the first 24 hours or at almost double the rate at 4984 feet. The Telford 1 on the same lease had top of the Mayes lime at 4560 feet and was drilling below 4675 feet.

Oklahoma City's March Output Averages 165,000 Barrels Daily

Oklahoma City.—Speculation is rife concerning the effect that East Texas crude moving to northern and Eastern markets will ultimately have on the Oklahoma City pool. Since the first of the year operators have concentrated every effort to secure increases in allowable production for the pool and have been successful in raising the allowable from 125,000 to 175,000 barrels daily. Production for March averaged more than 165,000 barrels daily and pipe line runs were correspondingly high. Prior to the recent announcement of a 50 per cent cut in runs by Stanolind Crude Oil Purchasing Company, the underproduction situation looked favorable. Under former proration periods a large number of properties lagged behind in securing connections for the allowable production. This condition had been gradually improving and June 1 probably would have brought the production situation near equilibrium. Stanolind's reduction from better than 50,000 to about 25,000 barrels daily will serve to lengthen the adjustment period but will not upset present plans provided other drastic cuts are not made.

Completions continue to come in at about the same rate but in numbers that look pitifully small in comparison with those of a few months ago. During the drilling boom 15 to 25 completions per week were not uncommon and one month saw close to 100 wells pass from the drilling to the producing stage. Three wells were completed last week bringing the total up to 766. Indian Territory Illuminating Oil Company's Terrace Lawn 2, NE NW NE Section 10-11n-3w, penetrated 110 feet of Wilcox sand and stopped at 6415 feet still in the sand. It was brought in by the washing method which has been adopted by the operator and used on all wells since the townlot development began. Bailed down 1000 feet it cleaned in 15 minutes during which time sand cut away connections. After being repaired it was opened for one hour to flow 1522 barrels of oil

with gas at the rate of 45,000,000 cubic feet under 1000 pounds pressure. T. B. Slick Estate and Urshell topped the Wilcox at 6225 feet and produced 2987 barrels in three hours from their Central 2, SE SE SE Section 3-11n-3w; total depth is 6530 feet. T. B. Slick Estate's Classen 5, SW SE NW NW Section 2-11n-3w, in the older part of the northern portion of the pool, cut out connection and had to be shut in after flowing 315 barrels in 12 minutes. Production is coming from Wilcox sand at 6175 to 6333 feet; total depth is 6361 feet. Gas gauged 75,000,000 cubic feet.

South Oklahoma Drilling Drops to Low Proportions

Ardmore, Oklahoma.—Drilling activities in the southern part of the state appear to have reached a minimum since the Tatums pool passed out of the picture as a leader and no areas are receiving enough attention to be called active. Eight wildcat tests in five counties now carry the burden of development and only one well is listed as drilling in the Tatums pool. Amos Drilling Company and Walter H. Gant are shut down waiting on cement to set in their Sparks-Hooks 1, SE SE SE Section 13-1s-3w, on the northeast edge of the Tatums pool. Casing was set at 1945 feet to test oil sand logged at 1946 to 2106 feet. Frank Gouin et al have completed skidding derrick and are rigging up rotary tools at their J. W. Burton 1, CSW NW Section 30-1s-2w, about three-eighths of a mile south of production. It is located about one-quarter mile southwest of Magnolia Petroleum Company's D. C. Burton 1 which was recently abandoned at a depth of 4115 feet. Carter Oil Company's Paul Robb 2, SW SW NW Section 19-1s-2w, on the east side of the pool, is still a rig.

One of the most interesting tests so far as location is concerned is that of Monarch Petroleum Corporation at its Gregg 1, S½ SW SW Section 36-3s-4w, approximately one mile west of production in the old Healdton pool. A large number of shallow dry holes have been drilled in the immediate vicinity. This test, which is now drilling below 1675 feet, should have encountered considerable thicknesses of lime if the buried ridge upon which the Healdton pool is located extends to any appreciable distance northwest of the proven area. This is the third test to be drilled in recent months searching for extensions to the pool. Sands showing oil were encountered at depths of only a few hundred feet below the surface to more than 2000 feet on the east side of the area and one small producer was completed in the shallower horizon.

Among the rank wildcats of the territory the C. P. Williams et al, Fee 1, CN½ NE Section 21-1n-4e, probably heads the list. It is located about six miles northeast of the town of Sulphur on the north side of the Arbuckle Uplift and approximately at the contact between Simpson formation and the Pontotoc of Pennsylvanian or Permian age. At last report it was drilled below 653 feet after reporting a slight show of gas at 545 feet.

Industrial Oil & Gas Company has abandoned its Sharp 1, NE SE NE Section 17-6s-5e, about six miles southwest of the Madill field in Marshall County. Drilling was carried to a total depth of 1150 feet, making it among the deeper tests. Production is obtained in the pool at depths ranging from 400 to 700 feet from sands thought to belong to the Trinity of lower Cretaceous age. In drilling in the area operators have two alternatives, that of testing for Trinity production at shallow depths or penetrating a considerable part of the Pennsylvanian which would require several thousand feet of drilling under normal conditions.

McCrory, McCrory and Frame have announced location for their Whitworth 1, SW SW SE Section 24-7s-5e, about one mile northwest of production in the Kingston shallow pool. Hudson and Harrell expect to start drilling this week in their Williams 1, SW SE NE of the same section. McCrory and McCrory's J. W. Little 1, NW NW SW Section 30-7s-6e, averaged five barrels per hour on a three-hourt test last week. Production is coming from sands logged at 490 to 494 feet. It is located in the Kingston pool.

Holmes et al have announced abandonment of their location on the Flanagan farm in NW NW Section 2-8s-1e, four miles southwest of Marietta in Love County.

Completion in Ritz Pool One of Largest in Kansas

Wichita, Kansas.—Dickey Oil Company completed the largest well in the Ritz pool and the largest to be completed in the state in recent years when its Eva Decker 1, SEc Section 35-19s-2w, came in flowing at the rate of 3316 barrels the first 12 hours. It was estimated as a 2400-barrel well last week and the official gauge came as a surprise although it was showing indications of being one of the largest wells thus far obtained in either the chat or Viola lime horizons. Chat was encountered at 2933 feet and first gas two feet lower. First oil showed in the gas at 2946 feet. Total depth is 2967 feet still in the chat horizon. Further interest attends this completion since it extends production two locations west and is one foot structurally higher than the Shell Petroleum Corporation's J. B. Koehn 1, SE SW SW Section 36-19s-2w, which was completed for only 345 barrels in the chat with water showing.

The Texas Company has farmed out several of its leases in the area and Derby Oil Company is rigging up its Floak 1 in the SW of Section 29-19s-1w, on acreage formerly held by The Texas Company. The Texas Company and Barnsdall Oil Corporation's Aelmore 1, which offsets it to the south, had 207 barrels of oil initially. The same operators were drilling below 2600 feet in the Kansas City-Lansing formations in their Decker 3, CSE NE Section 11-19s-2w, near the top of the Decker structure. W. C. McBride, Incorporated, has announced location for its Whitright 2, NW NW SW Section 30-19s-1w, and Mid-Kansas Oil & Gas Company is building a rig for its Unruh 1, SE SE SW Section 25-19s-2w. The former is one location south and four west of the discovery well in the Garrett pool and the latter is approximately one-half mile west of production in the area between the Ritz and Decker pools.

Derby Oil Company is drilling below 1200 feet in its Eastborough Estates 5, in the platted area of Section 19-27s-2e in the Eastborough pool. New work has fallen off sharply in this pool since practically all wells are making water and outlying tests have failed to find production.

Fisher and Lauck topped the chat at 3003 feet in their Souder 1, Section 1-28s-1w, about one mile southwest of Wichita. Water encountered at 3060 feet is being shut off with 6⅝-inch casing preparatory to drilling deeper. Several small productive spots have been found in the area south of Wichita and any test drilled to chat is of interest in the general area.

Muth Brothers' Freeman 1, SEc Section 4-21s-6w, approximately one-half mile from production in the Welch pool in Rice County, had chat from 3430 to 3460 feet and pumped 20 barrels of oil along with 400 barrels of water during the first 24 hours. It may be plugged back in an attempt to shut off bottom water. The area is one of considerable variation in initial production, wells in the Welch pool having ranged from 40 to 1000 barrels. It is within a mile of Phillips Petroleum Company's Miller 1, NW NE NE Section 3-21s-6w, which came in May, 1928, producing 1000 barrels on the first 24-hour gauge.

News From California Fields

BRAD MILLS, ***Staff Representative, Los Angeles, California***

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New World's Depth Record Reached in Rincon Field

Los Angeles.—The 10,000-foot hole is no longer a possibility —it is a fact.

Chanslor-Canfield Midway Oil Company has reached a new record depth of 10,010 feet in Hobson A-2, a wildcat about two miles east of the Rincon field, making it necessary to use five figures for the first time in stating the depth of a well drilled for oil. The formation showed brown shale at 10,000 feet and only one or two more cores will be taken before a production test is made.

Hobson A-2 was spudded in on August 8, 1929. It was primarily located to extend the Rincon field, although it was realized that another "high" might be found at this point. The first oil sand of any importance was found at 6440 feet. This formation continued intermittently to 7479 feet. At this depth a string of 5¾-inch casing was run for a production test. The well made about 200 barrels of oil on the compressor but was not regarded as commercial.

In July, 1930, the well blew out and the rig was partially destroyed by fire. Better and heavier equipment was installed and drilling continued. Following a long fishing job during the last months of 1930, the well was carried rapidly down from 8000 feet. When a depth of 10,010 feet was reached on May 15, the formation showed brown shale and streaks of oil sand.

The crew on the derrick floor at the time the five-figure depth was reached included S. B. Turner, driller; G. W. Herrick, Henry Goodwin, Milton Shepherd and Ray Woods.

Latest North Dome Completion Shows 10,000-Barrel Initial

Coalinga, Calif.—Completion late in the week of Superior Oil Company's Huffman 2 with an estimated initial production of at least 10,000 barrels and a possible production of 25,000 barrels was the outstanding development at Kettleman Hills. This latest North Dome completion is flowing through a limited number of traps and would produce several times the amount now flowing through two small beans. Huffman 2 was completed at 8320 feet. A string of 9⅝-inch casing was cemented over the Temblor formation at 6990 feet. Before completion, a 6⅝-inch oil string was landed on bottom and cemented through perforations to shut off the upper gas sand which has been responsible for the high gas-oil ratio in the earlier producers. Due to the small bean now in use, the gas flow has not been estimated. The gas-oil ratio on the reduced basis is less than 1:1000.

Huffman 1 set a speed record on the North Dome and was completed without a hitch at any stage of drilling. The well was spudded November 11, 1930, and was completed in six months. Original estimates for wells drilled to this depth averaged about one year. The shortage of gas traps has hindered the production test and real potential of the well will not be known until more traps are installed.

The latest producer is an offset to Huffman 1 and may be located on structure a little better than the latter. It is being offset by other wells located on fee land. The Temblor formation was found at about the same level as in Huffman 1 and the completion depth is only three feet shallower than the company's initial producer.

Petroleum Securities Company has turned Felix 1, completed a week ago, into its own trap assembly and production increased to 11,700 barrels of 34 gravity oil and 79,000,000 cubic feet of gas. The poor gas-oil ratio is the first reported since the shutting off of the upper gas zone was started. Felix 2 is producing 4000 barrels of oil, following the sharing of its traps with Felix 1. These wells are on the north flank of the North Dome and about one mile north of the axis. They clearly indicate a field production in excess of more conservative estimates of two years ago. Original production of Felix 1 from the top of the Temblor zone was 1500 barrels. This flow declined rapidly until the well was killed for deepening to 8110 feet.

Standard Oil Company's No. 7Q-21, completed a week ago with an initial production of 7500 barrels, is flowing 6800 barrels of 36 gravity oil and a low quantity of gas. This well is not offset but is located well north of the axis.

Several wells will be completed within the next two months and production will soar if measures are not taken to halt the upward trend. Necessity for offsets will force operators to drill wells for protection of their interests. Among the wells which will be completed during the next few months should be Associated Oil Company's Whepley 2; Shell Oil Company's Dixon 1; Standard Oil Company's No. 29J-65, No. 29J-85, No. 33J-21, No. 35J-47, and No. 3P-32; Union Oil Company's Amerada-King 1; Kettleman North Dome Association's Continental 2P-41, Getty 6Q-8, Milham 1P-23, Milham 28J-8, Pacific Western 1 P-2, and Pacific Western 34J-27; and North American Consolidated's Blauvelt 1.

Field activity has increased gradually and there is little prospect for a rapid decline in this work.

Obtain Water Shutoff in North Belridge Deep Test

Bakersfield, Calif.—Reward Oil Company, a subsidiary of Associated Oil Company, has obtained a water shut off in its No. 4, a deep test in the North Belridge field, and should complete the well within the next few weeks. A string of 11¾-inch casing was cemented at 4998 feet over the Temblor formation and the well is checking almost as high on structure as the discovery well. Cores taken at 5100 feet showed a brown shale with some oil and gas. This well is located on Section 34-27-20 and is west of the apex.

Wells drilled along the east side of the structure indicated that the trend of production may extend farther to the west than to the east. The North Belridge field has been somewhat of a mystery, despite the completion of the discovery well as a good producer. The rush to develop holdings which were outside tracts in the upper zone brought out the realization that the same leases are also outside the producing limits in the Temblor formation.

Failure of Richfield Oil Company's first test and of Ohio

Oil Company's initial effort proved that little should be expected of the Temblor on the east flank outside the producing limits of the upper zone. Union Oil Company's most recent completion was a disappointment and is flowing less than 300 barrels from above the plug at 5540 feet. The narrow strip which will produce in the Temblor formation probably will be a high pressure area and may eventually become a greater factor than recent failures have indicated.

California Passes Bill to Curb Excessive Production

Sacramento, Calif.—Final passage of Sharkey Bill No. 362, a measure designed to act as a curb on excessive production of crude oil, may ultimately hold the state output of oil to market demands. Under the terms of the bill, which has not been signed by Governor Rolph, a commission of five will study the state requirements and will report to and work with the director of natural resources. This places six members on the commission, which may have the power to control production and to curtail the output if necessary.

The five members will be appointed from as many districts. The director of natural resources will have most power in decisions, finally passing on work of the remainder of the commission.

Independent operators generally opposed the bill, claiming that it meant "price fixing" and ultimate paying of excessive prices for gasoline and other refined products. The major oil companies supported the measure on the ground that state control was better than failure of control within the industry.

Earlier in the week, the Sharkey bill to prevent townlot drilling was passed. As passed, the bill applies only to new discoveries. It provides that a well cannot be drilled within 100 feet of a boundary or a road or within 150 feet of another well. If the lease is of unusual proportions or does not conform to measurements provided by the bill, not more than one well may be drilled to each acre.

Plan to Re-Drill Ocean Test Off Coal Oil Point

Santa Barbara, Calif.—Bolsa Chica Oil Corporation is considering the re-drilling of Augur 191-1, an ocean wildcat off Coal Oil Point and until recently regarded as a most promising test, following a decision that constant swabbing and cementing have shut off the best portion of the producing formation. Decline of the gas pressure has been viewed with suspicion for some time, since the best showing was made during the original test.

Shutting off of the gas and oil flow through cementing and swabbing is possible and an effort to restore at least the former pressures will be made.

The well was drilled to 4191 feet and plugged to around 4100 feet for the first test. A flow of 90 per cent water and 10 per cent mud was obtained during the first production test. Constant working with the well has not improved its mechanical condition. Drilling of another well seems the logical solution to the problem, but for certain reasons this will not be done.

The first well was supposedly located on top of the structure, but it is doubtful whether this was true. The entire structure is apparently located under the ocean. A pier was built about 800 feet outside the mean high tide line for the first test, but there is now evidence that the first well was located on the edge of the structure.

Reach Oil Sand in Two More Wells at Huntington Beach

Huntington Beach, Calif.—Superior Oil Company has reached the top of the oil sand in two more deep wells at Huntington Beach and has cemented casing in both tests. Eberle 1 was drilled to 7177 feet and has nine-inch casing cemented on bottom, while Gillette 7-2 was drilled to 6990 feet and a string of nine-inch casing run to 6987 feet. These two wells were deepened largely on the strength of the oil sand found in Fee 1, which was drilled to 7471 feet and shut down without a production test.

The decision to rush two more wells to the top of the new zone before making a production test in the original well was held as a good reason to expect deep production in this field. W. E. McCaslin's Transport 1 has been held up with a fishing and sidetracking job and may not be tested again until one of the three deep wells on adjoining leases is tested.

The deep zone at Huntington Beach remains as much a mystery as it was three months ago, and it is doubtful whether any operator has full assurance that commercial production will be developed below 7000 feet. A good producer in this deep zone would result in increased drilling.

Independents' Agency Will Work With Major Companies

Los Angeles.—Oil Producers Sales Agency, an orgaanization recently formed to find the best possible market for oil produced by independent operators in California, will work with major companies to control production and has no intention of standing alone in its work, according to executives of the agency. Formed primarily to prevent the disposition of crude at a price lower than economic conditions warrant, the agency will handle only crude oil.

Announcement that refiners should not fear discrimination in the distribution of the crude marketed by the agency has been responsible for enrolling several new members. The organization is now the leading one among independent operators, but several producers refuse to enter into agreement to market oil collectively. Signatures representing less than 100,000 barrels have been obtained, but as much more has been promised.

The rise of the Kettleman Hills field may hasten the conclusion of organization plans and force action to dispose of Los Angeles basin crude. Meanwhile, the shifting of operations to the new flush field may make it more difficult to dispose of oil produced in the southern part of the state.

Ventura Avenue Completion Affects Development Little

Ventura, Calif.—Completion two weeks ago of Associated Oil Company's record producer in the Ventura Avenue field is not expected to have an immediate effect on field development, and it is doubtful whether the portion of the producing zone most recently opened will be tapped more than a few times during the remainder of the year. The record well, Lloyd 57, was completed with an initial production of 5000 barrels at 8823 feet, but this flow will be reduced some to conform with curtailment plans.

There are now 20 active projects in the field and new locations have not offset the large number of completions recorded during the past six weeks. The field would be a threat if controlled by several companies, but Shell Oil Company and Associated Oil Company have developed the field along conservative lines and a continuation of the past orderly program is expected.

New Mexico and Rocky Mountain Area

Push Construction Work on Central Wyoming Gas Line

Casper, Wyo.—Construction on the pipe line work for North Central Gas Company's system from Central Wyoming to the eastern communities of the state and to those in Western Nebraska, is being pushed with all possible speed at present. A booster station is being built at Casper, and those at Teapot Dome and Poison Spider are being dismantled so that machinery may be moved to the station in Casper. All material necessary for the line is now ordered, and is already arriving in carload shipments in Casper and other points along the line.

Distributing mains in Douglas are being laid, and the material for those in other communities is en route. Stanolind Pipe Line Company is limbering up the pump stations along the old Sinclair oil pipe line which is to be utilized for 224 miles by North Central Gas Company as a carrier for its gas. Oil is being cleaned out of the pipe; it is to be pumped to the Standard Oil Company (Indiana) storage at Whiting, Indiana, and other points east.

All construction work on the entire system is to be done by the company's organization. North Central Gas Company is very closely identified with New York Oil Company.

Billings, Mont.—Deepest test ever drilled in the Rocky Mountain States, Resolute Oil Company's wildcat discovery well on the Badger Basin structure, continues to drill into the second Frontier sand, steadily but slowly. Last reported total depth was 8530 feet and a production varying from 75 to 150 barrels per day of very high grade crude oil continues to flow by heads. Major production in the second Frontier is expected around 8550 feet, but completion will be delayed by the extreme depth of cable tools and the reduced size of the hole.

Shreveport.—A block of 8000 acres of wildcat territory has been assembled in Union Parish, Louisiana, centering in Section 21, Township 21n Range 1w, by T. T. Fields, Jr., for Ruston Drilling Company of Ruston, Louisiana, with a drilling obligation to spud a 3000-foot test by July 20. Fields is also reported assembling a block centering in Township 23n, Range 1 east and Range 1 west, reputedly for Pure Oil Company. In this general territory about eight years ago several small oil producers were completed, the discovery well being drilled by O'Brien and associates.

Great Falls, Mont.—Another gas well has been completed by the Howard-Schoonover interests on the Bears Den structure, Northern Montana. Well is good for 7,500,000 cubic feet from 1985 feet in the Kootenai. It is the first of a group of six to be drilled for the account of Northern States Utilities Company, serving Great Falls with its natural gas supply.

Rock Springs, Wyo.—First discovery of oil in the North Baxter Basin field, Southwestern Wyoming, was made recently by Ohio Oil Company, which has 20 or 25 barrels per day from the top of the Sundance sand at 3630 feet. There is also a production of about 2,000,000 cubic feet of gas. Oil is of a rather high gravity, expected to test around 36. The well is Cappers 2, SW NE Section 2-19n-104w.

Start Work on Montana's Huge Natural Gas System

Billings, Mont.—The huge natural gas distribution system for cities and towns in Southwestern Montana, which is to be completed as soon as possible by Montana Power Company, is already well under way. The line started by Ohio Oil Company from Dry Creek field to Bozeman has been taken over and made a part of the project, and the company has already contracted for drilling the first four of a program of 24 wells in the Cut Bank field in Northern Montana, from which trunk line is to be laid to Butte, Anaconda, Helena, and other communities and towns along the rights-of-way. The Bozeman system will now be a part of the whole plan. Auxiliary supplies of natural gas will be available from Ohio Oil Company's supply in Northern Wyoming and Southern Montana fields.

A large part of the pipe needed for the system has been ordered from A. O. Smith Corporation of Milwaukee, and shipments are already under way. The main trunk line from the Cut Bank district to Butte and Anaconda will be 243 miles long and 222 miles of this will be of 20-inch pipe.

Midway Dome Deep Test Shut Down at 6700 Feet

Casper, Wyo.—On May 15 the deep test being drilled by Midwest Refining Company and others on the Midway Dome structure, 12 miles north of Casper, was preparing to shut down at 6700 feet, waiting for orders whether to drill on to the Tensleep sand, expected around 7500 feet, or to plug back and shoot the Muddy, 5967-83 feet, which had shown considerable saturation when it was cored.

This well gave considerable promise in the second Wall Creek sand (5167-5215 feet) and this production was plugged off to permit the well to be drilled deeper. In deepening, the Muddy sand was found to have a very considerable showing of oil and gas, below which there were 53 feet of Dakota and Lakota formations, practically consolidated with the exception of very slight breaks. Below the Dakota there was more than 400 feet of Sundance formation, with several thin sands, none of which carried oil or gas in commercial quantities. Below the Sundance there was 10 feet of Alcova, which was also unproductive. Red beds were entered at 6620 feet.

Further plans for Midway and Geary domes are not announced.

Casper, Wyo.—Mountain Fuel Supply Company has announced a re-gauge of its discovery well on the Powder Wash structure, Northwestern Colorado, with a resulting increase of 1,000,000 cubic feet of gas to a total production of 35,188,000 feet per day and a rock pressure of 685 pounds, an increase of 55 pounds. Gas is coming from the upper Wasatch formation, some 2000 feet higher than the first commercial gas sand on Hiawatha dome structure to the west. It is believed that Powder Wash is the highest geological formation producing in Rocky Mountain territory.

East Central Texas Field Notes

H. H. KING, ***Staff Representative, Fort Worth, Texas***

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East Texas Operators Making Greater Development Strides

Tyler, Texas.—Greater strides are being taken by East Texas operators in developing their holdings, and at the start of the current week field reports on the four counties participating in the production listed more than 500 operations. Combined figures for Rusk and Gregg Counties accounted for a new peak of 483 operations, with no indication that the maximum volume of field work has been reached because of the vast amount of proven oil leases awaiting the drill.

Proration is influencing many of the companies and operators in regard to developments, as added potentials and units must be obtained to maintain production allowances. Lease owners that lag behind on developments automatically surrender their proportionate share of the production allowance to interests that are aggressive in proving up additional 20- and 40-acre units along with huge potentials.

East Texas Operations

Expansion of field work in Rusk and Gregg Counties since the area reached important proportions is illustrated by the table below, showing operations on given dates:

Date	Locations	Derricks and Rigs	Active Tests	Totals
February 9	10	34	34	83
February 16	21	48	54	123
February 23	23	71	70	164
March 2	22	97	84	203
March 9	21	129	104	254
March 16	21	128	136	285
March 23	27	136	194	357
March 30	22	141	222	385
April 6	24	134	231	389
April 13	40	154	223	417
April 20	49	155	231	435
April 27	56	135	259	450
May 4	59	143	240	442
May 11	54	158	246	458
May 18	54	160	269	483

Longview Field Is Assured Seven-Mile Maximum Width

Longview, Texas.—Recovery of oil saturated sand cores from outpost tests drilling at Gladewater during the past week afforded important westward extensions to the Gregg County section of the Longview field, which is now assured of a maximum east and west width of more than seven miles. Scattered completions along this east and west stretch rank among the largest producers in the district, with excellent sand conditions prevailing.

Humble Oil & Refining Company's D. Johnson 1, in the east part of the townsite of Gladewater and on 62½-acre lease, J. R. Crosby Survey, cored top of oil-saturated sand at 3599 feet, and quit in pink shale at 3612 feet to cement seven-inch pipe at 3590 feet. This test has a bottom hole depth of 3287 feet below sea level, with a safe margin against the known water level of the area. The same company's T. M. Armstrong 1 has cemented casing to test oil sand encountered at 3566 feet, or 3276 feet below sea level. The latter is located in the southeast part of 60.9-acre lease, L. J. Rigsby Survey, and is about 1¼ miles east of the town. L. S. Flannery et al's W. H. York 1, an east offset to the Armstrong test, was preparing to complete early this week after having drilled through first sand at 3515-20 feet, with shale at 3520-60 feet, then second oil sand at 3560-82 feet. This second sand horizon is showing up in a number of wells in the west portion of the Longview field.

Texas Pacific Coal & Oil Company's Fee 1, located in the southwest corner of 182-acre tract and also the G. Hampton Survey, helped to prove up the westward trend for the Longview field, with a potential flow rated as high as 30,000 barrels daily by production officials of the company. Fee 1 encountered first oil sand at 3564 feet, with a surface elevation of 361 feet, and quit in sand at 3625 feet. About 75 per cent of this formation was classed as oil saturated sand. The well actually gauged 997 barrels of clean oil during first hour, with 120 pounds back pressure on the gas separator. The volume of gas accompanying the oil was estimated at 10,000,000 cubic feet daily. Texas Pacific Coal & Oil Company is building a 10-car rack on the Texas & Pacific Railroad to deliver its allowable production to its refinery at Fort Worth.

F-H-E Oil Company et al's Julia Flemister 1, located in the central part of the G. W. Hooper Survey, and near the Gregg-Upshur County line, flowed 250 barrels per hour through one-inch choke on tubing from regular sand at 3598-3638 feet, with a surface elevation of 365 feet. This well is on a direct line between the original section of the Longview field and the lone producer in Upshur County.

Kilgore Operators Exercise Greater Care in Completions

Tyler, Texas.—Greater care observed lately by operators in completing wells from the top of the Woodbine sand horizon in the salt water section of the Kilgore field has retarded the spread of water. New completions on the west side of this area and at points known to be structurally low are taking only a few feet of sand, and in most instances big producers result from such practices. Stanolind Oil & Gas Company's M. R. Terrell 1, located on west end of 50-acre lease, E. G. Sevier Survey, and near producers showing water, increased its flow to 60 barrels oil per hour through tubing when deepened late last week from 3704 to 3712 feet, or a bottom hole minus depth of 3314 feet. This well had poor saturation in first four feet of sand drilled at 3700-04 feet.

Plugging back operations on Magnolia Petroleum Company's Florey 1, which was the first well in the Kilgore field to make a high percentage of water, has failed to correct the bottom hole water intrusion, and late last week was making 14 per cent b.s. and water while restricted to 280 barrels of fluid daily.

flowing through 25/64-inch choke and 245 pounds back pressure on the tubing. This well was plugged back from 3661 to 3608 feet, then re-drilled to 3647 feet. East Texas Refining Company's D. Wills 2, which drilled through the oil sand and into water through miscalculations, has been developed into a good producer after having tested only water at 3692 feet, or 3348 feet below sea level. This well was plugged back 13 feet and cemented, then casing ripped, resulting in a flow of 110 barrels clean oil per hour through choke from perforation at 3605-20 feet. Sun Oil Company's J. R. Beall 1, located in southwest corner of 180-acre lease and a north offset to the above workover, registered a similar initial output when tested from sand at 3614-25 feet, with the hole bottomed at 3299 feet below sea level.

Poor sand conditions accounted for disappointing results being obtained on preliminary tests of two wells on east edge of the Kilgore field. Magnolia Petroleum Company's Dick Wells 2, located in southeast corner of 100-acre lease, Hy Hobson Survey, yielded only 25 barrels oil after swabbing 24 hours from sand at 3627-3636 feet, but will deepen. E. B. Madden, Olney, Texas, operator, and associates' Mose Mayfield 1, an east offset to the above, also failed to flow when swabbed from broken sand and shale at 3704-34 feet. The latter was drilled to 3260 feet below sea level. No water is expected to result should these tests drill through the sand, as both are high structurally, and should encounter the Georgetown lime in making new hole.

Pending the completion of a direct pipe line connection, Sinclair Oil & Gas Company's M. T. Cole 1, which proved up considerable new oil territory for the northwest portion of the Kilgore area accompanied by an accident that cost the lives of nine workmen, will remain shut-in. This well was successfully capped May 13 after being out of control 17 days, including eight days that it was aflame. Territory lying between this producer and the main part of the Kilgore field is sharing in the development program that is gaining in volume each week in Gregg and Rusk Counties.

Large Kilgore Completion

Completion of a 15,000-barrel producer in the south central part of the Kilgore field by Golding-Murchison Oil Company, the first test on the Brock land in the R. W. Smith Survey, has been followed by a daily withdrawal of about 4000 barrels to supply Tyler Pipe Line Company in covering on old contracts. Brock 1 drilled 25 feet of oil sand to a total depth of 3663 feet. Golding-Murchison Oil Company was organized recently with headquarters on the ninth floor First National Bank building, Dallas, to develop East Texas properties of Clint W. Murchison, Dudley S. Golding and others. The latter is president of the new company, and Murchison is vice-president. A big producer was completed recently by the company on the M. L. Thompson 50-acre lease, M. J. Prue Survey, Joiner field, and six rigs are now operating on the company's holdings in the two fields.

Wainwright-West Oils, Ltd., a Canadian concern with headquarters at Toronto, completed J. Ben Watson 1, located on a 3½-acre lease in the southeast part of the J. S. Carruthers Survey, Gregg County section of the Kilgore field, making 257 barrels of oil per hour through one-inch choke on tubing from sand at 3577-3615 feet. This small lease was acquired from R. H. Dearing & Sons, Dallas drilling contractors, who in turn gained possession as part payment for the drilling of a test on adjoining lease for A. R. Byrd, Jr. & Ed. B. Hopkins. Whittle & Kavenaugh No. 2, Inc. (R. B. Whittle, Claude Kavenaugh & Philip Creasap, Jr.)'s Watson 1, located on a seven-acre lease in the same area, flowed 180 barrels oil per hour through one-inch choke on tubing from sand at 3586-3620 feet. Sand conditions are excellent in this section of the Kilgore field, and structurally high, as the latter well is bottomed at a minus depth of 3244 feet.

In the Rusk County section of the Kilgore field, J. S. Abercrombie and Harrison Oil Company's E. Cantrell 3, R. E. Winn Survey, gauged 500 barrels oil during first 90 minutes flowing through 1½-inch choke, with 175 pounds back pressure on tubing, from sand at 3682-3708 feet. The owners of this producer maintain headquarters at Houston, and have a 53-acre lease that overlaps the R. E. Winn and R. W. Smith Surveys.

East Texas Production

Daily average production of the Joiner-Kilgore district and the Longview field is shown below, with total number of production wells included:

	JOINER-KILGORE		LONGVIEW	
Week Ending—	No. Wells	Daily Average Production	No. Wells	Daily Average Production
February 18	22	19,090	1	6,511
February 25	24	24,954	1	7,044
March 4	39	51,475	1	4,578
March 11	50	75,170	1	7,170
March 18	64	75,540	5	14,021
March 25	81	104,345	6	17,769
April 1	115	119,500	11	24,990
April 8	159	165,250	16	26,000
April 15	198	210,208	25	38,180
April 22	234	239,515	30	58,480
April 29	298	271,070	39	68,715
May 6	344	216,650	46	52,250
May 13	434	208,900	58	48,550

Test in Shelby County, Near Shelbyville, to Drill Deeper

Shreveport.—Sloane Prospecting Company's Windham 1, A. H. English Survey, Shelby County, East Texas, near Shelbyville, will be drilled deeper, having shown salt water when bailed during the last week at total depth of 2680 feet with 22 feet of Blossom sand. Elevation is 307 feet. This well the preceding week had shown 16 feet of sand saturated with oil in a core from 2652 to 2669 feet; 6⅝-inch casing was cemented at that depth and plug was drilled and a core taken to 2680 feet, the bottom of the core showing what some observers believed to be a salt water sand. However, bailing was started but after the test had bailed down 1700 feet salt water appeared and it was decided to pull liner and go deeper; contract depth is 4000 feet.

Harrison County added another dry hole to its list of recent failures when George L. Pace's Barker 1, Victor Pedraso Survey, southwest of Hallsville, was abandoned in lime, probably Georgetown, as dry at 4018 feet; elevation was 349 feet; Pecan Gap was topped at 2207 feet. In the northeastern part of Harrison County William Atkinson's Hays 1, J. C. Chappin Survey, topped Blossom sand at 2430 feet and a drill stem test was made from that depth to 2470 feet, nothing appearing and the well will proceed deeper. Banner and associates have not yet drilled in Lowery 1, W. O. Stanfield Survey, casing was set after an oil sand core from 2797 to 2805 feet in the Blossom.

Marion County secured a new wildcat test during the past week when Sheldon and associates spudded Brown 1, R. B. Fowler Survey, 14 miles northwest of Jefferson, the county seat, for a 4000-foot test. Nine miles south of Carthage, Panola County, Davidson and associates spudded Latham 1, G. F. Penn Survey, a wildcat test. Arkansas-Louisiana Pipe Line Company (Cities Service) is building derrick for another upper Trinity zone gas test for Panola County, Bethany gas area. The new test is Werner 14, B. C. Jordan Survey.

Well Shooting Is Nothing To Take a Sound Movie Of

Each one brings its own problems.

That is the verdict of M. M. Kinley concerning oil well fires. He is back in Tulsa now, hoping, no doubt, that the call to extinguish another well will not come before his left leg has time to mend.

The broken leg was one of the peculiarities of the Sinclair Cole well fire near Gladewater, Texas. Kinley has been loading the ingredients of gelatin into all types of conveyances and hitting off to the oil fields of the world to put an end to blazing oil or gas wells. Back when Bald Hill was something of an oil field in Oklahoma he did his first job of "shooting out a fire." His work came into prominence during the Cromwell boom. The pictures which hang on the Kinley office out on East Admiral in Tulsa are evidence that he has traveled much and touched off a lot of explosive since Bald Hill days.

This Is His First Broken Leg

There is one thing common to all blazing wells in the estimate of Kinley—there is some method of snuffing out each fire. Always something different but always a way to overcome the different ones.

On the Cole well it was the Kelley bar and the gooseneck; also the pine stumps, which would burn, when seemingly covered with water. All the equipment and debris common to oil well fires had to be removed but that was an old story. Getting ready is a longer task than placing and discharging the shot.

After the draw works had been cut loose with the welding torch, a pull from a tractor and wench proved the disaster of the broken leg. It caught M. M. Kinley and sent him to the hospital, leaving his brother Floyd Kinley to carry on the work of getting ready and placing the shot.

A change in wind direction delayed the Kelly bar and swivel job for 18 hours. Finally a hitch on the Kelly bar got the hold necessary and 14 turns loosened it. Fortunately the Kelly had been set up with tongs. The Kinleys had hoped that well pressure would throw the Kelly out of hole. When that did not happen, a small shot was set off and the Kelly was out of the way.

Before that happened, however, M. M. Kinley was back on the job, with the assistance of a horse and a pair of crutches. He was in and out of the fire zone, showing workmen how to hitch on to equipment so it could be snaked out. Once the horse went into a soft spot and was leg deep in the mire when Kinley decided to trust to his one good leg. Both horse and man came out without damage.

This workman was having trouble taking a hitch, so M. M. Kinley took to his crutches and soon had the piece of equipment on its way out.

Woods Caught Fire

Then the woods caught fire and the water streams had to be turned to that job. So the final shot had to wait. Finally the stump problem had to be solved. That was another of the "different" problems of the Cole job. There was plenty of water but water would not finish the job. As soon as a stream was taken off a stump it started smoldering again. So the tractors and other equipment had to be set on the stumps. The only type of stump that would not burn was a stump removed from the fire zone. It took almost a day to pull the stumps.

Floyd Kinley took in the 200-quart shot of gelatin and there was quick work of a blaze which had claimed nine lives.

There was another peculiar problem for the Cole well; but it claimed the attention of Sinclair officials rather than the Kinleys. The news reel photographers were on hand and bent on getting both pictures and sound to let the world know how an oil well fire is snuffed out.

They objected when ordered back to a safe distance. Since safety consisted of considerable distance as well as protection, sound and pictures would be faint. Finally some of the cameramen were allowed to set up where they desired after they had signed papers to absolve the company of damage.

Result—The concussion of the shot shattered the delicate mechanism of the cameras.

Proration in East Texas Now Undergoing Difficult Period

Tyler, Texas.—Proration enforcement in East Texas is undergoing a trying period after having weathered the first 15-day period with a small percentage of the total well owners in the area failing to abide by the production restrictions ordered by the Texas Railroad Commission. Ten producing concerns and two companies operating common carrier gathering lines and racks attempted to obtain relief from proration by appealing for court injunction, while the commission retaliated by filing suits in Rusk and Gregg Counties against four separate companies for violation of proration orders. No definite court action has resulted from any of these cases, and the first trial will be held in Federal court.

Macmillan Petroleum Corporation of Los Angeles and Alfred Macmillan, acting as trustee, carried its plea for relief from proration rules of the commission to Federal court, and will be given a hearing before a three-judge court at Houston, beginning May 21. The outcome of this case will have direct bearing on future of proration in Texas as conducted by the commission, and apparently the district court injunction cases will be passed up until after the preliminary case at Houston is disposed of.

The commission has directed suits against British-American Oil Producing Company of Tulsa and Toronto, Canada; Cranfill-Reynolds Oil Company, Houston; Pilot Oil Company, Dallas, and the Macmillan interests for alleged violation of proration rules in East Texas.

The following owners of producing properties in East Texas have filed petitions in district court at Austin to restrain the commission from enforcing proration on their respective properties: H. F. Gibson, F. Kirk Johnson and John F. Merrick, all of Fort Worth; Horseshoe Lease Syndicate, Henderson, Texas; Luling Oil & Gas Company, San Antonio; Nat Hunter

Producing Company and Nat Hunter Oil Company, Houston; Lide-Rowe Oil Company, Lide-Tayloe Oil Company, Bill & Dave Oil Corporation. Central Pipe Line Company and Texas Inland Waterways Pipe Line Company, both of Fort Worth, have also applied for injunctions.

Macmillan Test of Proration Drawing Widespread Interest

Houston.—Trial of Macmillan Petroleum Corporation's suit to enjoin the Railroad Commission of Texas from enforcing oil proration regulations in East Texas will be held here before a three-judge federal court, beginning Thursday, May 21.

Circuit Judge J. C. Hutcheson, Jr., will act as chief justice and the other two judges will be Federal District Judges Duval West of San Antonio and Randolph Bryant of Sherman, of the western and eastern districts of Texas, respectively.

This suit has been of particular interest because of indication that it may be carried through the United States Supreme Court. It was filed in federal court in the western district, but Judge West declined to issue the requested injunction, and instead he communicated with the circuit court in New Orleans, suggesting that the case be tried before a three-judge court.

That course was decided upon, it is believed, since the permanent injunction would require that the petition be heard by three judges because it involves federal constitutional rights.

Alfred Macmillan, individually and as trustee of the petroleum company, alleges that the proration law and its enforcement interferes with use of private property, a right guaranteed by the federal constitution. The petition alleges further that since the company has both land development and oil sales contracts that should be fulfilled the proration enforcement amounts to confiscation of the plaintiff's property. It also alleges that oil proration has such a widespread effect upon market conditions in the East Texas field that in order for plaintiffs to obtain "adequate relief it is necessary that enforcement of said order be enjoined as to all persons and companies subject thereto and affected thereby."

Mazda Oil Corporation Completes Kilgore Well

Tyler, Texas.—Mazda Oil Corporation's M. M. Cotton 1, recently completed producer in the Kilgore area, Gregg County, East Texas, has total depth of 3659 feet, according to available information, and reports of the initial production varied from 20,000 to 30,000 barrels daily, based on brief gauges. Information which was given in this journal May 15, page 66, was in error, according to an official of the Mazda Oil Corporation, who reports that top of the sand is 3312 feet below sea level, with bottom of hole at 3320 feet, minus, and that the well has not shown indication of salt water.

Cheyenne, Wyo.—A deep test on structure 15 miles southwest of Cheyenne is to be drilled by Prairie Oil & Gas Company of Wyoming, and material is all ready to be moved in to location on Section 22-13-68. Location is on a structural "high" worked out geophysically which extends from Horse Creek on the north to below the Colorado line on the south. The company drilled a test on the Horse Creek structure some years ago, but abandoned it in sands too shallow to have been productive, it is reported.

East Texas Fields Take Large Electric Voltage

That electrification of the East Texas oil field in Rusk and Gregg Counties is making strides is indicated by the fact that Southwestern Gas & Electric Company, Shreveport, has contracted for 7680 horsepower in the fields since C. M. Joiner's discovery well near Henderson, Rusk County, was completed last October. Additional thousands of horsepower will be required when and if the field settles to a pumping basis. Electric lines of sufficient capacity to handle such a load when it develops, already reach into every part of the field.

Electric drilling rigs are operating in the three parts of the field, Joinerville, Kilgore, and Lathrop. Electric drive has also been adopted for most of the pipe line pumping stations and for practically all of the refinery operations in the new area.

As rapidly as new power contracts are signed the electric company is constructing the necessary extensions and installing the requisite additional transformer capacity.

The entire East Texas area north from Center, Shelby County, to the Oklahoma line has been served with electricity by this company since 1926 when it bought East Texas Public Service Company. An adequate and comprehensive network of transmission lines already criss-crossed the fields before the discovery of oil and this has been augmented to handle the mounting load. From west to east the company serves an area between Grand Saline and Shreveport. In this area this company guarantees electric power in any quantity.

At present the main 66,000-volt system of the company extends from Grand Saline to Shreveport. This main line is fed by interconnections with Texas Power & Light Company at Grand Saline and Mineola, and by a 30,000-kilowatt generating station of Southwestern Gas & Electric Company at Arsenal Hill, Shreveport. The Marshall station of the latter company adds 4500 kilowatts to the system and the Texarkana station of the same company adds 6500 kilowatts via the 66,000-volt Texarkana-Shreveport and Vivian-Jefferson-Marshall lines. Other interconnections bring the present system's capacity of the company to 60,000 KW with abundant power reserves available at the interconnection points.

From the main 66,000-volt east-to-west line several 66,000-volt and 33,000-volt laterals and loops branch out, traversing the oil producing area. From Longview south to Henderson a 66,000-volt line has been in service for some time. This has been looped back by connecting Henderson, Beckville, Marshall and Longview on a 66,000-volt ring. This system also feeds 66,000 volts into the Joinerville area where a transformer station of 3000 KVA capacity has been erected to transform from 66,000 to 11,000 volts for distribution to lease lines which are operating at 440 volts. An 11,000-volt loop connects Henderson and Joinerville, the other side of the loop following the I. & G. N. railway closely to a point approximately four miles due north of Joinerville where the 66,000 substation is located. To safeguard service to this substation it is included in the 66,000-volt loop from Longview through Henderson, Beckville and Marshall back to Longview.

Joinerville Area Supplied

The entire Joinerville area is supplied with 11,000-volt service from this 66,000-volt station. Lines run north from the Joinerville substation to Kilgore where they tie into another 66,000-volt substation supplied with energy from a lateral off the 66,000-volt Longview-Henderson line. From this substation the 11,000-volt service is carried on into Longview, forming an effective two-way feed for the 11,000-volt service in the entire Kilgore area. The Kilgore substation has 3000 KVA available, transforming from 66,000 to 11,000 for distribution to the lease

lines at 440 volts and for the city of Kilgore distribution at 6900 and 2300.

In the Lathrop area a radial feeder from Longview supplies the field. The feeder operates at 11,000 volts. The Longview substation has 3000 KVA available at 11,000 volts into the Lathrop field and along the Longview-Gladewater highway where much building and some drilling has been done.

At Gladewater a substation of 3000 KVA capacity transforming from 66,000 to 11,000 has been erected. An 11,000-volt line will be built south from this station to tie in with the 11,000-volt system going north from the Joinerville area thereby giving 11,000-volt service for the entire length of the field along the eastern boundary of Rusk County.

Extension of the field north from Longview has been anticipated by the power company and plans have been made to care for the load as it develops in that direction. At present the company operates a 66,000-volt line from Atlanta west to Hughes Springs where it converts to 33,000 volts and feeds on to Daingerfield, Pittsburg, Gilmer and Big Sandy, tying in at the latter point with the 66,000-volt line from Shreveport to Grand Saline. This provides a loop to the north of the present producing area, and is available as a reservoir of power for developments in that direction.

Contracts Executed

Among contracts executed for electric power in the East Texas oil field are the following:

For oil pumping: H. L. Hunt, Incorporated, at Joinerville, 250 KW; Arkansas Natural Gas Corporation, at Longview, 162 KW; Pilot Oil Company at Longview, 50 KW.

For oil refineries: Beacon Oil Refining Company, at Henderson, 100 KW; East Texas Refinery, at Joinerville, 340 KW; East Texas Refinery, at Longview, 235 KW; Beacon Oil Refining Company, at Henderson, open.

For pipe line pumping: Central Pipe Line Company, at Joinerville, 200 KW; Central Pipe Line Company (L. G. Welsh, Trustee), at Joinerville, 232 KW; Tyler Pipe Line Company, at Kilgore, 350 KW; Simms Oil Company, at Longview, 57 KW; Shell Petroleum Company, at Davis Lease, Longview, 57 KW; Tidal Refining Company, at Daisy Bradford tract, Joinerville, 150 KW; Houston Oil Company, at Kilgore, 20 KW; Crown Central Petroleum Company, at Henderson, 150 KW; Atlas Pipe Line Company, at Kilgore, 400 KW; Gulf Production Company, at Kilgore, 80 KW; Humble Pipe Line Company, at Marshall, 600 KW; and at Kilgore, 375 KW; Sinclair-Texas Pipe Line Company, at Friars Switch, 10 KW; and Houston Oil Company (pipe line), at Kilgore, 30 KW.

For machine shops: Speed and Service Machine Company, at Joinerville, 25 KW; Stanley Boiler Works, at Joinerville, 20 KW; Lake Tool Company, at Longview, 80 KW; American Iron Machine Works, 19 KW; Stebben Machine and Boiler Works, at Longview, 25 KW; Long Iron Works, at Longview, 20 KW; B. & A. Welding Company, at Kilgore, 35 KW; National Tool Company, at Kilgore, 15 KW; C. E. Daffer Machine Shop, at Kilgore, 11 KW; Johnson-Haynie Iron Works, at Kilgore, 10 KW; American Supply Company, at Kilgore, 10 KW; Midco Tool & Supply Company, at Kilgore, 30 KW; O. A. McGilvie Machine Shop, at Henderson, 15 KW; Tate Boiler and Machine Works, at Henderson, 25 KW; Appleman Bit Service, at Henderson, 25 KW; and Standard Boiler and Machine Works, at Henderson, 40 KW.

Miscellaneous items such as lights and motors, for camps, for loading racks and oil well drilling comprise the remainder of 7560 KW contracted for in East Texas since the field was opened aside from 235 KW used in four ice plants in that area. Negotiations are also pending with Shell Petroleum Company and Tidal Oil Company for 500 KW each for pipe line pumping.

EAST TEXAS HIGHLIGHTS

By H. H. KING
Staff Representative

Seek Higher Crude Levels

Considerable pressure has been exerted lately in lining up major companies and substantial independents on the Mid-Continent gravity scale price payments for East Texas crude, and eight companies are now paying on royalty oil produced from their leases, 67 cents per barrels for 40 gravity and above. Pressure has been brought into play through financial circles on some of the companies, while sponsors of the higher price schedule have voluntarily solicited support.

Companies paying the Mid-Continent schedule for royalty oil, and in most cases when outside purchases of crude are made follow: Magnolia Petroleum Company, Humble Oil & Refining Company, The Texas Company, Sinclair Refining Company, Sun Oil Company, Shell Petroleum Corporation, Mid-Kansas Oil & Gas Company, and Gulf Pipe Line Company. Arkansas Fuel Oil Company has not made a practice of buying outside oil, other than taking care of Yount-Lee Oil Company, and has been paying 47½ cents per barrel at the well; but unofficial reports early this week were to the effect that the Mid-Continent price schedule had been adopted. A flat price of 40 cents per barrel at the well was being paid meanwhile by Tidal Refining Company, Simms Oil Company, East Texas Refining Company and Atlas Pipe Line Company, except on old contracts.

Texas Company in East Texas

The Texas Company has agreed to furnish market outlet for 10,000 barrels of crude daily from the Joiner-Kilgore district, including controlled oil and outside purchases. This company completed its first producer in the southwest part of the Joiner field last week, and on May 15 made its first price posting, which ranges from 43 to 67 cents per barrel. Heretofore The Texas Pipe Line Company's crude movement from the district has been confined to common carrier hauls.

East Texas Drilling Costs

Standard price of $2.50 per foot, with derrick, casing, fuel and water furnished, is now being paid by East Texas operators to drilling contractors for drilling the 3600-foot wells. Provisions are made for extra coring expense on all contracts. Some of the early contracts in the district netted drilling contractors $3.00 to $3.50 per foot, but keen competition and cheap crude prices soon enabled operators to trim the price scale. Crooked holes are dealing misery to drilling contractors, as most contracts allow only a narrow margin of drift from vertical, and conditions in the district are adaptable to crooked holes.

East Texas Water Problem

Approach of dry hot months is causing East Texas operators to begin casting around for an adequate water supply to fill drilling requirements during the summer. Streams that have taken care of local requirements will become exhausted with the passing of the rainy season, and water obtained from the Sabine River, which separates the Kilgore and Longview areas, is reported to be destructive to boilers. Water wells are none too prolific when supplying

a battery of boilers, although air lift has been used satisfactorily in the Joiner area in boosting the output of water wells. Tidal Oil Company has gained possession of one of the largest bodies of water in the district through having leased the Lake Davernia Hunting & Fishing Club's fishing grounds in northern Gregg County. Limited sales of water from this lake are now being made to nearby drilling rigs.

Sinclair Line Progressing

Sinclair-Texas Pipe Line Company began receiving pipe middle last week to be used in building about 85 miles of 12-inch line from tank farm and pump station on the A. S. Jarvis 256-acre site, M. D. L. S. Coy Survey, Smith County, to connect with Pure Oil Pipe Line Company's of Texas mainline station near Teague, Freestone County. Stringing of pipe began May 14, and plans are to have the line ready to receive oil by middle June. The first of two 80,000 barrel steel tanks purchased for erection on the Jarvis site has been completed, and the other tank will be available within a week. More tanks are slated to be built on this site.

Offsets at Wider Intervals

Greater space intervals between offset tests becomes more popular with operators and companies in the East Texas district as the volume of field work advances to new peak levels. Many natural locations will be omitted through co-operative measures taken by adjoining lease owners in making agreements in regard to distances from property lines that tests are located. Most lease owners welcome such agreements, especially when the spotting of more than one test on a single proration unit can be avoided. Locations authorized in recent weeks show many tests that are located more than the normal 330-foot spacing from property lines. Even with a high crude yield per acre operators are convinced that it will be unprofitable to drill up every available location, while the question of financing such a campaign is having more bearing on the well spacing subject than the final outcome.

Pipe for Sun's Line

Pipe will begin arriving this week for the 10-inch trunk line to be built by Sun Pipe Line Company, East Texas division, from East Texas fields to tank farms and tanker terminals held near Beaumont by the Sun Oil Company and Yount-Lee Oil Company. The latter two companies are financing the project on a 50-50 basis, and will equally share the capacity of the line. The pipe was purchased from Jones & Laughlin Steel Corporation. Mitchell-Stewart Construction Company, Dallas, has been given the contract to build the north half of the 200-mile main line, including gathering lines in the Joiner, Kilgore and Longview fields, and the Schmit Construction Company was the successful bidder on the south half. Each contractor must complete a minimum of two miles daily average. Rightofway for the line has been purchased parallel to Gulf Pipe Line Company's system most of the way. Pump station equipment had not been definitely selected late last week. One station is to be located in the Longview field section of Gregg County, while a second station will be located on a 46-acre site out of the W. T. Grissom farm, John F. Brown Survey, located in western Rusk County and about three miles south of the Joiner field. Four 82,000-barrel capacity, American Petroleum Institute specification, steel tanks have been purchased for immediate erection on the above site, and more tanks are to be bought for the north station, as well as for Sun Oil Company's terminal on the Coast.

Toronto Plans Line

Toronto Pipe Line Company, subsidiary of British-American Oil Producing Company of Toronto, Canada, with district office at Tulsa, is building a six-inch line from its 50-car rack on the I&GN Railroad near Overton to the south central part of the Joiner field, and also a four-inch line from the rack to the heart of the Kilgore field. This line will serve the various leases of the British-American Oil Producing Company in the two fields, and also handle a portion of the contracted oil purchases made recently by the latter.

Joiner Field Extended By Wells West and South

Tyler, Texas.—Productive territory in the Joiner field was swelled during the past week by the successful completion of outpost locations on the west and south edges. Sinclair Oil & Gas Company's Mayfield 2, located about one mile northwest of the nearest production in the Smith County section of the field, flowed 923 barrels during first 7 2/3 hours from broken formation at 3843 to 3851 feet.

This well was drilled to 3311 feet below sea level, and logged only about three feet of productive sand. On the south end of the field La Salle & Davenport's Kinney 1, located on east edge of the Cadena Survey and opposite Round Lake, flowed 65 barrels oil per hour through three-quarter-inch choke on tubing from broken sand at 3613 to 3647 feet. It is about one mile south of nearest production.

Sinclair Oil & Gas Company's Jarvis 1, located on extreme southwest edge of the Joiner field and in Smith County, developed seven per cent water when opened to 2000 barrels oil daily, but resume making pipe line oil early this week when throttled to proration allowance. It was completed late in April with a sub-sea depth of 3321 feet.

Owen-Sloan Oil Company's Starnes 2, located in northeast part of Smith County and west of Gladewater, held little chance of scoring production above the water level, and early this week was drilling at 3660 feet, or 3303 feet below sea level. It was credited with having encountered first Austin chalk at 3657 feet, and with normal chalk thickness would be eliminated from oil production.

Two Wildcats Open Pools 18 Miles Apart in Kansas

Wichita, Kansas.—Russell County came to the front in a big way during the past week when two wildcat tests 18 miles apart were showing for the discovery of new pools. J. H. Hall et al topped the Oswald lime at 2886 feet and had two pay zones beginning at 2902 to 2922 feet. The hole filled 1500 feet in three hours and operators bailed at the rate of about four barrels per hour until it bailed down. With an increase of four feet in depth the hole filled 1100 feet in two hours. At last report it was being carefully drilled through the remaining thickness of Oswald in search of other pay zones and was filling up at the rate of about 1200 feet in 50 minutes. Drilling was being continued at 2995 feet about 90 feet in the Kansas City-Lansing formations. The test is located approximately six miles northwest of the Sellens pool at which point Stanolind Crude Oil Purchasing Company has loading racks.

Gilbreath-Austin et al, encountered top of the Oswald lime at 3058 feet in their Bratton 1, CNE Section 33-11s-13w, in the northern part of the county, and about 12 miles east of production in the Paradise district. The upper pay was found at 3090 to 3094 feet and the hole was filling with oil at the time of last report.

South Texas Field Developments

EARL POST, ***Staff Representative, San Antonio, Texas***

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Eastern Limit of Pettus Field Defined by Failure

San Antonio, Texas.—The eastern limit of the Pettus field of northern Bee County was defined by United States Production Company's Ray 38, located 900 feet east of the present eastern point of production, the well testing salt water. Sand was topped at 3973 feet and drilled to 4979 feet. When drilled recently the sand looked very favorable for oil production and casing was set and cemented without taking a drill stem test.

Gulf Coast Oil Company's McKinney 2, located three miles north of the Ray-McKinney discovery district in territory opened by McKinney 1 gasser last year, picked up the sands, both of which were tested. First sand was found at 3684 to 3698 feet and showed a gas pressure of 375 pounds in 15 minutes through a 5/16-inch choke; second sand at 3715-27 feet, tested 425 pounds through the same size choke in 11 minutes. The district is in the George Habbermacher Survey. McKinney 1 was initially a 20,000,000 foot gasser, making wet gas.

United Production Corporation drilled a well 1100 feet southeast of it, the Ray 13, which was completed for 500 barrels of oil daily. McKinney 2 is 500 feet west of a line between the two.

The Ray 37 is drilling more than a mile east of Ray 38. The location is in the Willis A. Moore Survey. It was drilling in sticky shale at 1131 feet.

J. H. Davis et al's Ray 1 was moving in rig and rigging up. Alexander et al's McFall 1, three miles south of Skidmore, was last reported shut down at 1206 feet with boiler trouble. F. C. Grebin and Woods' Riggs 1, a wildcat test 6½ miles west of Skidmore, has not yet spudded, but is about ready.

Development of Multi-Sand Field in Saxet Area Likely

San Antonio, Texas.—Development of a multi-sand field in the Saxet area of Nueces County seems in prospect as two semi-wildcat wells show for producers in separate horizons from the regular field. Both wells show oil and gas.

Gulf Coast Oil Company's Maggie Harrell 1, located three-quarters of a mile north of production, encountered a sand at 3154 to 3168 feet, where a drill stem test developed a pressure of 750 pounds in 1½ minutes on a 3/16-inch choke. The well later picked up a sand at 3761 feet to 3168 feet, where a drill stem test showed approximately 173 feet of oil and 750 feet of mud. The well was drilling ahead at the last reports.

L. L. Smith, Inc.'s Hunter 1, east of production and southeast of Gulf Coast Oil Company's well, encountered a sand at 3150 feet that was showing both oil and gas. The sand had not been tested when the last report was made.

Saxet Oil Company's Dunn 8 in the Saxet field, 1000 feet north of Dunn 7, drilled to 4091 feet, where it tested salt water. The well has a sand at 4079 feet, which showed saturation when cored, but several drill stem tests failed. The well will be plugged back and the higher horizon tested. Others are producing in the field from the horizon where this well first showed for a producer. The Dunn 7 is an oil well at 4296 feet.

The completion of the Dunn 8 will widen the field in the 4100-foot sand to one mile with a length of nearly five miles.

Houston Oil Company's Harrell 2, offset to Gulf Coast Oil Company Harrell 1, is making hole at 1883 feet.

In the Agua Dulce field in western Nueces County, Houston Oil Company completed Ollie Purl at 4835-49 feet for over 40,000,000 cubic feet of wet gas. The hole was drilled to 6010 feet, but failed to find anything encouraging in the lower horizons and plugged back. It is the second deep well completed in the field where the regular sand is found at approximately 2000 feet.

Plan Second Test for Area Five Miles North of Goliad

San Antonio, Texas.—Benedum and Trees Oil Company and Gibson Oil Corporation are planning to drill another well in the district where they recently encountered several showings in Parks 1, five miles north of Goliad in Goliad County.

This decision followed the testing of salt water in the first well at a depth of 4381 feet recently. The well was originally drilled to a depth of approximately 5200 feet and could be carried no deeper because of heaving shale. It showed some oil and gas from 4520 to 4541 feet but failed to make a commercial producer and was plugged back and whipstocked to the depth at which it was tested.

Before the final abandonment of the well, another whipstocking job might be undertaken. The rig may be removed within several days for the drilling of another well.

San Antonio, Texas.—Carsil Oil and Gas Company's McGill 2, in northern Jim Wells County, will probably be abandoned at 3004 feet, where it has been shut down for orders. It is located 900 feet due north of the same Company's McGill 1, which more than a month ago blew in a big gasser from sand topped at 2683 feet. The well ran beyond control for nearly two days, drilled itself into salt water and was plugged. The McGill 2 missed all sands found in the first well.

San Antonio, Texas.—Lanning-Noack 5, in the Chapman field, Williamson County, was completed May 16 for an initial production estimated at more than 1000 barrels from the Serpentine, regular producing horizon of the field. The well ran wild several hours. It is an offset to E. L. Chapman's Abbott 1 discovery well, completed January 18, 1930. This is the first completion of any consequence in several months in this field.

San Antonio, Texas.—Two producers have been completed in the Schoolfield and O'Byrne pool of Duval County for an initial production of 600 barrels. Magnolia Petroleum Company's Wilson 3, of Survey 134, has been completed at 300 barrels, with casing set at 2349 feet, and a total depth of 2394 feet. The Texas Company's Bishop Duval Land Company 1, of Survey 135, has been completed at 300 barrels, with casing set at 2349 feet, with total depth of 2384 feet. The deepest well in Duval County at this time is Humble Oil & Refining Company's Kohler 50, in the Kohler pool, Survey 164, which is fishing at 6087 feet.

Gulf Coast Field Developments

JACK LOGAN, ***Staff Representative, Houston, Texas***

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Committee Seeks to Cut Gulf Coast Operations to Minimum

Houston.—The special advisory committee appointed May 2 by operators in the Texas Gulf Coast territory, with R. H. Hargrove, United Gas System, as chairman, met in Houston, May 18, for the purpose of hearing reports of the sub-committees. These sub-committees were formed as a result of the special committee of 11 members dissolving itself into three groups with the aim of studying the proration situation in the various Gulf Coast proration districts.

The committee in its meeting May 18 rendered a decision to attempt to have all operators in the Texas Gulf Coast area reduce drilling operations to a minimum in an effort to hold production within the allowable set by the railroad commission. An attempt will be made to have operators refrain from any new operations except where it is necessary to protect leases. At present there are about 30 active operations in the Gulf Coast territory, exclusive of the operations at Barbers Hill, most of the activity having subsided within the past two months. Great numbers of the wells that were drilling have been temporarily shut down and new locations have shown a continuous decline since the first of the year.

The advisory committee voted to request the railroad commission to extend the present allowable for the Gulf Coast fields for a period of 30 days. The committee believes that within that time the production will be reduced to the 140,000 barrel allowable. The efforts of this committee apparently are already having an effect on production, estimates for the past week showing a decline of approximately 5000 barrels since the appointment of the committee.

Abandons Bayou Blue Dome Test in Salt at 3855 Feet

Houston.—Standard Oil Company of Louisiana has abandoned L. Baist Cooperage Company 1, Bayou Blue dome, South Louisiana, in salt at 3855 feet after having encountered what was thought to be a good show of oil. This well, which is located in Section 68-9s-10e, Iberville Parish, hit top of the cap at 3693 feet and made a slight show of oil and sulphur at 3780 feet with a better show of oil at 3789 feet.

The sands encountered did not show sufficient indications for making commercial production and it was decided to drill further into the anhydrite but all prospects for making a producing well were given up when the test drilled into salt at 3818 feet.

Choctau Bayou field, Iberville Parish, has favorable indications for a producer in Gay 1 of Standard Oil Company of Louisiana which has cored a good sand below 4169 feet. This test was formerly operated by Gulf Production Company but was taken over by the former company and drilled to 4178 feet at which depth it gave indication of making a producer. A test showed practically pure 30 gravity oil but the well failed to flow. A sidetrack job was made at 4113 feet and the hole drilled back to 4166 feet where it went through three feet of rock and then struck the oil show in a formation entirely different from the formation in the old hole.

Wilbert 9, in the Bayou des Glaise field, Iberville Parish, also operated by Standard Oil Company of Louisiana, has drilled into lime rock at 3384 feet and is preparing to core. Top of the lime rock was hit at 3374 feet.

Activities in Louisiana Gulf Coast Show Decline

Houston.—Activities in the Louisiana Gulf Coast for the past week showed a general let-up with a majority of the operations being temporarily shut-down. The operations in Cameron Parish showed the greater part of the work to be in that vicinity. One failure was recorded for the entire parish, that of Federal Petroleum Company, Herbert 2, in the old Hackberry field, which was abandoned at 5602 feet in shale.

Two wells in this parish give indications of making producers. R. E. Seiss, Trustee's Vincent 2, in the Hackberry field, set casing at 2042 feet after it had drilled through top of the cap rock at 1995 feet, and is waiting on cement to set in order to make a test of the sand from 1965-95 feet. Pure Oil Company had a good show of oil in sand at 7366 feet and drilled into it to 7385 feet before setting casing in its Yount-Lee 10, Sweet Lake field.

Calcasieu Parish has one promising test in Gulf Refining Company's Lutcher-Moore 27, in the Starks field, which hit an oil show at 1228 feet. Casing has been set at 1205 feet and a test will be made as soon as the cement has set. Yount-Lee Oil Company's Miller 2 in the Lockport field is drilling in shale and lime at 5440 feet. Union Sulphur Company after abandoning its Fee 762, in the Lockport field, at a new record depth for the Gulf Coast of 9250 feet, has decided to work the hole over and has sidetracked at 5064 feet. The sand will be tested at that depth.

Houston.—Tyler County wildcat activities suffered a disappointment during the past week when L. H. Wentz's Long Bell Lumber Company 1 was abandoned in shale after having been drilled to 4205 feet. This test is located 2200 feet east and 400 feet north of the southwest corner of the J. Seale Survey. No shows were reported. The other two operations in this county have both been shut down temporarily. King Oil Company's Caswell 1 has shut down after having encountered an oil show at 1250 feet. Texas Sun Company's (Allied Petroleum Company) Wilson 3 has been shut down for a period of almost three weeks. At the time operations were suspended the test was drilling in shale and lime at 4870 feet.

San Antonio, Texas.—Three wells are being rigged up in the Victoria, eastern Refugio County wildcat district. They are: United Production Company's McFadden 4 A, Houston Oil Company's Conrad 1 (The "Beck Salt Dome"), and Humble Oil & Refining Company's O'Conner 1, in the extreme northern part of Refugio County, near the Victoria County line. In Victoria County Simpson Fell Oil Company's McFaddin 1, of the Slick Estate, is drilling at 3420 feet.

Stratton Ridge Dome Test Sets New Field Depth Record

Houston.—Rycade Oil Corporation and Amerada Petroleum Corporation, joint operators of Seaburn 2, on Stratton Ridge dome, Brazoria County, have abandoned the well after establishing a new deep test record for the field, and after revealing an unusual condition in the outline of the dome.

Seaburn 1 of the same interests, abandoned in September, 1930, revealed a secondary dome or plug extending out from the main salt mass on the east side of the dome, going into cap rock at 2350 feet and being abandoned in salt which had been logged from 2670 feet to 2753 feet. Wells nearer to the main dome and west of Seaburn 1 had been drilled to relatively great depths without encountering cap rock or salt. This well therefore proved the presence of the secondary dome.

First evidence of that salt mass east of the main dome had been given through geophysical surveys, indicating either a separate dome or an extension of the Stratton Ridge dome.

Seaburn 2, located 2100 feet due east of Seaburn 1 and 4451 feet south and 2400 feet east of the northwest corner of the William Austin half league, encountered neither cap rock nor salt although it was drilled to the above mentioned depth. No showings of either oil or gas were reported in the test.

Bayou Bouillon Test Fails Near Mile Depth

Houston.—Bayou Bouillon field registered a failure last week when Humble Oil and Refining Company abandoned State 4 at 5248 feet in sticky shale. State 4, located in St. Martin Parish, Louisiana, was originally owned and operated by Rycade Oil Corporation but was later taken over by Humble Oil and Refining Company. This well passed up the 4300-foot producing level of the field without a show and drilled into a cavity at 4477 feet and stuck drill stem at that depth. The hole was sidetracked at 3845 feet and attempted to pick up a sand but drilled to the final depth without encountering a show and later was abandoned.

San Antonio, Texas.—United Production Company completed two more producers in Refugio field during the past week, one from the shallow oil sand, and the second from a deep horizon. Fox 1-A is producing about 800 barrels daily through a one-fourth-inch choke showing 625 pounds pressure. The well has casing set at 5875 feet and depth is 5878 feet. W. H. Heard 6 is spraying a large quantity of oil from 3674 feet. The well is showing 750 pounds pressure on the tubing and 800 pounds pressure on the casing through a 3/8-inch choke. Several more wells are in process of completion in the deep horizon of the field.

San Antonio, Texas.—North of Nueces Bay, Saxet Oil Company's White Point 4 has nippled up preparatory to completing at 4953 feet. Casing has been set at 4942 feet. The well showed broken sand and shale, well saturated, from 4910 to 4953 feet.

The well is expected to be the second oil producer in the field, the other being Houston Oil Company's Rachel 17, which made 60 barrels from 4901 feet. It showed a high gas pressure and the fact that the Saxet well got the pay a slight bit lower indicates that it might make an even better oil producer.

The White Point field is another district in the South Texas coastal plain that has been a gas producer at a shallow depth and later developed into an oil field in the deep horizon.

NORTH AND WEST TEXAS ▼ FIELD NOTES ▼

Deepening and Conditioning of Big Lake Wells Lowers Output

San Angelo, Texas.—Deepening and conditioning of two of the nine completed deep wells in the Big Lake field, West Texas district, has caused the output of the extremely high gravity oil from this area to drop to a low level of 10,129 barrels at the start of the present week. The gas yield during the same period aggregated 72,060,000 cubic feet. However, the field has one deep producer killed and capped that has proven itself capable of yielding a greater volume of oil and gas than the current withdrawals of the active wells.

Group One Oil Corporation's (Continental Oil Company) University 4-B was drilling by tubing and below last casing point early this week at 8283 feet, and probably was sidetracking the lost string of tubing. This well developed a cracked joint of casing at 328 feet below the surface on March 10 when back pressure on the tubing was increased to 1900 pounds and that on the seven-inch casing to 1000 pounds while pinched to about 5800 barrels oil and 42,750,000 cubic feet of gas daily. The well had produced 330,620 barrels of oil up until the time it was killed on April 16 to replace the damaged joint of casing. Tubing was dropped in the hole while this workover task was underway, and all but a few hundred feet has been recovered. The defective joint of casing has been replaced, and the upper portion of the string tested to 2500 pounds for 30 minutes. When re-completed this well will be restored to the active production list, but the company's University 2-B, which proved itself capable of flowing between 15,000 and 20,000 barrels of oil daily at 8667 feet before being killed, will remain off production indefinitely. This big producer can not be safely operated on a limited production.

Big Lake Oil Company's University 5-C was coring lime formation at 8762 feet at the start of the new week after having been killed to deepen from 8731 feet. It was averaging about 2100 barrels high gravity oil daily against heavy gas pressure on casing and tubing before being taken off production to ascertain the production possibilities in the lower horizon.

Production From Nine Wells

Production from the nine deep wells in the Big Lake field for the 24-hour period ending 7 a. m. May 17, 1931, is listed below:

	Oil Production	Gas Production	Pounds Casing Back Pressure	Pounds Tubing Back Pressure	Total Depth
Big Lake Oil Company—					
University 1-C	968	3,200,000	60	200	8,668
University 2-C	1,851	20,410,000	1,750	400	8,603
University 3-C	166	1,250,000	700	...	8,923
University 4-C	3,049	15,009,000	1,625	400	8,697
University 5-C	(*)	.....	....	...	8,762
Group One Oil Corporation—					
University 1-B	2,630	16,405,000	218	...	8,523
University 2-B	(**)	.....	....	...	8,667
University 3-B	1,465	15,786,000	1,275	900	8,633
University 4-B	(*)	.....	....	...	8,587

(*) Deepening before tubing. (**) Shut in.

Louisiana--Arkansas Field Notes

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Union County Well Shows Oil in Drill Stem Test

Shreveport.—Wilson and Chapman's Ned Parker 1, NW SE Section 3-18-13, Union County, Arkansas, a half mile north of production in the Urbana district, tested 36 joints of mud and oil in a drill stem test from 3559 to 3565 feet, Friday, May 15, and operators are arranging to set 6⅝-inch casing. As a result of the drill stem test these operators announced four new offset locations, Atkins 1, SW NE Section 3-18-13; H. Norman 1, SE NE Section 3-18-13; Doty Norman 1 and 2, NE SE Section 3-18-13. Several days before the last drill stem test Ned Parker 1 had tested 51 joints of oil and salt water from 3525 to 3541 feet.

Arkansas-Louisiana Pipe Line Company, during the past week abandoned McFadden and Brooks 2, NE NW Section 15-9n-21w, Pope County, Arkansas, in black sand as a dry hole at 4368 feet. Arkansas Pipe Line Company during 1930 opened a new gas field in Pope County where there are now two producing gas wells. In this test 1900 feet of 13⅜-inch casing was set. The test showed approximately 1,000,000 cubic feet of gas at 3285 feet; 8⅝-inch casing was cemented at 3415 feet, eight-inch at 3451 feet, and 5 3/16-inch at 4145 feet. The same company's Baird 1, SE NW Section 11-7n-20w, in the same county, is shut down repairing rig, total depth being 4115 feet.

Lion Oil Refining Company and associates' Guy P. Hayes A-9, SW NE Section 4-16-15, Union County, Smackover's first 5000-foot test, last week was drilling lime with streaks of sand and red beds at 3250 feet.

H. H. Given's Garrett 1, NE SW Section 1-3n-19w, Garland County, Arkansas, a wildcat drilled with cable tools, which has been shut down for several months, with hole full of salt water, was definitely abandoned during the past week at total depth of 3756 feet in sandy lime. This well was drilled intermittently for three years.

Bellevue Structure Test Blows Out and is Now Running Wild

Shreveport.—H. I. Morgan's Kendricks A-13, NW SE Section 22-19-11, on the southwest flank of the Bellevue high structure, highest point on the Sabine Uplift, blew out at depth of 1737 feet and was running wild late last week.

In the Bistenau district, Bienville Parish, where Arkansas Natural Gas Corporation, in recent months found both the Blossom and Woodbine productive of gas. Arkansas-Louisiana Pipe Line Company, a subsidiary of Arkansas Natural Gas Corporation, during the past week started rigging up for a new test, Gayoso Company 1, NW SW Section 14-16-10.

Leue Oil Company made location for its second wildcat test in Claiborne Parish in Kinder 1, SW SE Section 2-21-7w. Rellitt Oil & Gas Company made location in the Logansport district of West De Soto Parish, for Cannon Heirs 1, NE NE Section 12-11-16. East of Red River, in the parish of that same name, and across the river from the Bull Bayou producing field, Mack Jourden Company has spudded Lockett 1, Section 32-13-10.

Announce Locations of Five Tests for Zwolle East Field

Shreveport.—Several recent flowing wells in the southeast part of the Zwolle east field of Sabine Parish has resulted in renewed activity in that area as reflected in five new locations announced there during the week ending May 16. Despite the erratic behavior of the Zwolle marl and chalk formation, producers frequently being offset by dry holes and vice versa, the low cost of drilling to this formation at 2300-2700 feet, is an element in prospecting there, all producers finding a ready pipe line outlet and market for this 40 to 41 gravity oil.

The Texas Company's Stille 3, NW SW Section 33-8-11, a half-mile north extension of southeast Zwolle production completed late in the preceding week estimated to be flowing 500 barrels of oil daily through choke, was gauged during the past week as a 1000-barrel daily producer, flowing at that rate

Scene during recent construction of Arkansas Pipe Line Corporation's eight-inch trunk line from Longview to Shreveport. Oil was started through this line May 2, to supply East Texas crude for Shreveport plants

through seven-thirty-seconds of an inch choke. Total depth is 2318 feet in Zwolle chalk. Zwolle marl was topped at 2230 feet, and chalk at 2277 feet, 6⅝-inch casing having been cemented at 2225 feet.

New locations made in southeast Zwolle for the week were: W. M. Coates' McNeely 1, Section 14-7-11; Williams 1, Section 23-7-11, derrick; Lyons and Neely's Byrd 2, Section 1-7-11, rig; L. K. McGuffin's Bush 1, Section 1-7-11, location; and George Pipes, Trustee's Byrd 1, Section 1-7-11, derrick.

Three miles north of production in the Zwolle east field, John Woodley's Sabine 1, NE SE Section 12-8-12, is shut down at 2716 feet, probably near base of the Zwolle chalk, after bailing dry late last week at that level. The well showed nothing in the marl or chalk. Marl was topped at 2312 feet, its base being reached at 2392 feet, and bailed dry at 2403 feet. It will be allowed to stand for a time in the hope that oil may come into the hole as has been the case in a number of wells that showed nothing in bailing tests, later making pumpers and in a few instances gaining sufficient pressure to flow by heads.

Sespe District Completion Considered Very Important

Fillmore, Calif.—The unexpected completion of Merchants Petroleum Company's Cochran 1 with an initial production of 250 barrels at a depth of only 1285 feet was an important development in the Sespe district during the week and points to development of a large production of heavy oil in this old shallow area.

The oil sand was found at 1282 feet and after drilling only three feet into the sand the well started flowing at a steady rate. Initial production from the limited amount of oil sand was satisfactory for such a shallow well, but more hole will be made for a final production test.

This district is normally not regarded as a factor in California production, but there is a possibility that development of shallow leases which are reasonably sure to produce heavy oil in commercial quantities will be undertaken as the demand for fuel oil increases. The cost of drilling these wells is only a fraction of that required to drill deeper wells which may not produce a greater quantity of oil.

Activity in Long Beach Field Has Declined to Lowest Level

Long Beach, Calif.—Activity in the Long Beach field, formerly the backbone of settled Los Angeles basin field development, has declined to the lowest level in several years. With only 25 active drilling wells, the program for the remainder of the year does not call for an extended increase in operations. The spurt of a year ago has been followed by the opposite extreme and belief that the southeast and Los Cerritos extensions would support a drilling campaign of good proportions has disappeared.

The percentage of idle wells is the highest recorded in a long time, with several operators inclined to await more favorable development within the industry to carry out completion plans. The dozen good completions of several months ago were followed by a series of small completions, especially in the Los Cerritos district. This part of the field has long been famous for disappointing results, and even the fairly satisfactory producing zone around 7500 feet failed to lift the jinx. Teh south flank and southeast extension have produced satisfactorily, with the latter yielding fairly good wells between 5000 and 5500 feet. The field decline has been slow and the potential is still far above that of any Los Angeles basin field.

MISSISSIPPI NOTES

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Abandon First Test in Clarke County, Eastern Mississippi

Jackson, Miss.—Gulf Refining Company during the week ending May 16 abandoned the first test drilled in Clarke County, east central Mississippi, in water sand below the Tuscaloosa red beds, at total depth of 4515 feet; elevation was 221 feet. The test was Box 1, NW SE Section 11-2n-15e. Midway black shale was topped at 2205 feet, Selma chalk was topped at 2637 feet, the base of this chalk being reached at 3703 feet and Tuscaloosa red beds were topped at 4205 feet. The last 50 feet of hole was soft gray water sand under red shale. Gulf Refining Company has another drilling obligation on this block which was core-drilled last year before being accepted for exploration.

Meanwhile rig from this test is being taken to Pope 1, Section 35-8n-16w, Covington County, 60 miles south of here, which had been abandoned in Wilcox at 3000 feet by Mississippi Gulf Oil & Gas Company, and this test will be deepened to 4500 feet.

Gulf Refining Company continues to block wildcat acreage in various sections of south Mississippi, having recently filed a geological and geophysical contract covering 20,000 acres in Stone County, 35 miles north of Gulfport. This land is owned by Wilbe Lumber Company. Acceptance or rejection of parts of this tract for drilling operations is set for next February. It is also reported that Gulf Refining Company has arranged to lease at 25 cents per acre 6600 acres of wildcat land in Greene County, southeast Mississippi from Stover Lumber Company.

It is also reported that Sun Oil Company has taken a 15,000-acre block in Jefferson County, southwest Mississippi from Vaugan and associates, who recently blocked this tract. Sun Oil Company has a magnetometer operator working out of Brookhaven in Lincoln County at the present time. W. T. Moran Corporation has taken over 3500 acres in Lincoln County from J. W. Newman.

Geophysical Research Corporation has a seismograph party working in extreme southeast Mississippi in Jackson and adjoining counties with Pascagoula as their base. This party of five is in charge of Willard North. Humble Oil & Refining Company's seven-man torsion balance crew working for several months in George County, southeast Mississippi, is reported finishing up its work.

While the name of the company is not stated in reports received here, it is learned that a rig is being moved into Walton County, west Florida, for a test. Walton County borders Alabama. About 10 years ago two tests were drilled in this county, one going to 770 feet in Section 17-1s-17w, and another going to 1880 feet in Section 16-3n-20w.

Industrial Gas & Electric Company's Illinois Central 1, NE SE Section 4-5-1e, Hinds County, an outpost test west of the Jackson gas field, the only direction practically in which limits of the local gas area has not been defined, during the past week topped the Midway chalk at 2462 feet, after topping Midway shale at 2360 feet, with elevation 280 feet. Six-inch casing will be cemented within a few days.

P. J. McAlpine's Cowart 1, NE SW Section 2-12s-19e, Monroe County, Amory district, is shut down in grey, pinkish white lime, waiting on 6⅝-inch casing which it is planned to set to shut off a salt water seep coming into the hole.

INTERNATIONAL PETROLEUM
IN REVIEW

Iraq Royalty Agreement Indicates Production Volume

Baghdad, Iraq.—The government of Iraq and Iraq Petroleum Company, Ltd., have reached an agreement by which royalties and taxes on production and profits expected to accrue upon commencement of production operations in the Kirkuk area have, to a certain extent, been consolidated. The government has relinquished its claim to taxation on the company's foreign profits, but retains the right to impose an income tax on local profits.

Unofficial reports are to the effect that royalties have been fixed at four shillings per ton of production, which is equivalent to 12.8571 cents per barrel; and that the oil company has guaranteed the government a return of $1,000,000 per annum, plus a loan of $1,000,000 to be repaid when the government's royalty income reaches $2,000,000 per annum.

These figures are of especial interest as giving the first apparently authoritative intimation of the volume of production which the Iraq Petroleum Company proposes to establish and maintain upon completion of the pipe line across the Syrian Desert. A total of 7,777,803 barrels—or an average of 21,309 barrels per day—will be necessary to yield the guaranteed minimum of $1,000,000 annual royalty; and the concessionnaire will be required to develop a minimum daily average of 42,618 barrels in order to recover the loan advanced. Information reaching The Oil Weekly from other sources, however, indicates that shipments will be commenced at a daily average of approximately twice the latter figure.

Production Up—Drilling Down in Roumania

Recent reports from Roumania are to the effect that drilling operations have been reduced to about 13 per cent of normal, with only about 20 rigs in operation as compared to approximately 150 at this time last year. Production, however, is still running between 125,000 and 135,000 barrels per day, which is substantially above the average for 1930.

Bucharest, Roumania—

Rigs in operation include five each by Astra-Romana (Shell) and Steaua Romana (Angelo-French-Roumania interests), two by Romana-Americana (Standard Oil Company of New Jersey), and one each by "Unirea" and Credit Minier, which five companies normally employ a total of approximately 110 drilling outfits. Dacia Romano (British), I. R. de P., and "Sondrum," who normally operate a total of 10 to 15 rigs, are also shut down to one each.

Current production is divided among the major companies approximately as follows:

	Daily Average
Steaua	21,000
Astra	20,700
Concordia	19,700
Credit Minier	15,100
"Unirea"	14,400
Romana-Americana	9,900

Canadian Wildcat Revives Interest

Interest in the Alberta oil industry is at a low ebb because of repeated failures and the present financial situation, was suddenly revived when Hudson's Bay Oil & Gas Company, a jointly owned subsidiary of Continental Oil Company and Hudson's Bay Company, encountered several very promising oil showings in its Keho Lake wildcat.

The first strike was made in the lower Benton shales at a depth of 3680 feet, and a bailing test revealed that the well was capable of making 10 to 12 barrels a day of a fair grade of commercial crude, estimated to be about 22 degrees Ba. gravity. Drilling proceeded and several smaller shows were encountered until the bit cut a six-foot sand, which was saturated with oil of a higher grade than that found in the upper strata. As a result of further bailing tests a minimum daily production of 75 barrels was predicted. An early analysis of the oil was as follows: gas-

THE PICTURE—Kirkuk, the Tulsa of Iraq.

oline, 18 per cent; kerosene, 14 per cent; and lower fractions, 68 per cent. First samples tested 29.8° Be. gravity.

The concensus is that the discovery establishes the possibility of an entirely new producing horizon in the plains country. In the broken foothills regions, lying east of the Rocky Mountains, oil is encountered in minor quantities in the Benton, either in the Cardium sandstone or at the very base of the formation. However the Keho Lake discovery is the first instance of oil ever having been found in the Benton shales of the plains regions, lying east of the great Alberta syncline. The Wainwright field, some 250 miles to the northeast, produces a small quantity of heavy black oil from the Dakota-Kootenai series, but the Keho Lake well obviously found production much higher geologically in the Blackleaf member of the Benton formation. Comments concerning the importance of the strike are made with reservations that the sands are not stray ones, and that production will not rapidly decline.

"We are, of course, highly encouraged by the discovery," said R. Van A. Mills, general manager of Hudson's Bay Oil & Gas Company in Calgary, "but results of a longer test will be more interesting in that they will demonstrate the possible life of the sands. The real significance of the strike can be seen when it is realized that we have still the lower horizons to explore, including the Bow Island gas sands, several sands in the lower cretaceous, the Ellis and Sunburst sands, and the Madison limestone. The Bow Island sands we expect to reach in another 100 feet."

Plan to Drill Deeper

The well will be drilled deeper, and present production will be taken care of by tanks now being erected. Initial tankage capacity will be 1000 barrels. The well is located on flat prairie about 18 miles northwest of Lethbridge, is within four miles of the Canadian Pacific Railway's line to that city, and is admirably served by good gravel roads.

Land in the vicinity of the well is very closely held. The largest individual holdings are those of Hudson's Bay Oil & Gas Company which controls a little over 23,000 acres. Other large concerns interested in the new field are The Nordon Corporation, The Texas Company of Canada, and Parco Oil & Gas Company, a Prairie Oil and Gas Company subsidiary.

The nearest well to Hudson's Bay Oil & Gas Company's wildcat is a joint deep test, being drilled by Imperial Oil, Ltd., and The Texas Company, a few miles south of the city of Lethbridge. The Keho strike is believed to forecast the successful completion of this interesting venture.

German Oil Keeps Pace With Stabilization

(*Continued from page* 41)

the demands of German consumers is a notable lack of faith on the part of German authorities in the fertility of their petroleum deposits. Salt domes, seepages, and other natural evidence occur in abundance throughout the North German Plain but are discounted by German geologists on the ground that sand conditions, deposition, saturation, etc., are not so favorable as in the Gulf Coast of Texas and Louisiana, where similar geologic conditions are found.

Perhaps the greatest stimulus to the German industry, however, may come from the introduction of modern deep drilling equipment, as happened in Roumania, Russia, and elsewhere in foreign fields. German operators heretofore have preferred the rapid-percussion and percussion-slush methods of drilling; but it is interesting to note that the Preussag (Prussian state organization), purchaser of the Raky holdings near Oelheim, has selected rotary equipment of modern design for the drilling of a deep test at Edemissen.

Press comments also indicate a psychological change on the part of the German people, who seem disposed to value their oil prospects much more highly since the advent of two American groups which have acquired extensive acreage and commenced drilling.

Gewerkschaft "Niederblech," controlled by Cities Service Company, has commenced drilling on the Sehnde dome, near Hannover; and Nord-Europaische Oel-Gesellschaft, headed by Sidney H. Keoughan, formerly president of Continental Oil Company, is operating two rotary outfits in the province of Oldenburg.

German Achievements

Despite their seeming reluctance to accept drilling and production methods which are considered efficient in America and elsewhere, German scientists and engineers have earned several important niches in the industry's hall of fame. Oil mining, now proven successful at Pechelbronn (Alsace) and Wietze (Hannover), was first undertaken by German engineers; and the hydrogenation process, recently adopted in America and from which so much is expected in future, is also of German development.

The German Dye Trust has stabilized its output of gasoline from the hydrogenation of brown coal at about 98,000 gallons per day; and the distillation of lignite yields about 4000 gallons per day. Crude oil recovered by mining and washing of oil sand in the Deutsche-Petroleum plant at Wietze represents about one-third of the country's total output.

One Well Doubles Italian Oil Output

Florence, Italy.—Further testing of the recent discovery well in the Province of Parma showed a production of slightly more than seven barrels per hour, or nearly as much as the aggregate output from all the other wells in Italy, numbering nearly 400.

The town of Fontevivo in which the well is located lies at the base of the northern slope of the Apennines, adjacent to the Taro River and about 10 miles from the City of Parma, capital of the province. The presence of oil in this area has long been recognized, owing to gas emanations, traces of oil and stratification of the soil. The gas vents form a continuous chain which extends from Santa Franca in the Nure valley to Pietramala in the Santerno valley. A second chain is evident from the concentrations of light liquid hydrocarbons in nearby regions so far but little explored, and other zones have been recognized elsewhere.

During the past five years much drilling activity has been shown in the near foot hills of the provinces of Piacenza and Parma, the maximum depth reached being 3970 feet. These attempts have proved disappointing, although the gas emanations and traces of oil were plentiful and gave sufficient encouragement for continued efforts.

Completions for Past Week in U. S. Fields

▼ ▼ ▼

For Tabulation and Comparison See Market Section

CALIFORNIA

Company, Well and Location	Initial Production Bbls.	Depth
KETTLEMAN HILLS—		
Standard Oil Co., No. 72-21	7500	8091
LONG BEACH—		
M. and A. Oil Co., Painted Hills 4	1000	5950
West Coast Pet., Combination No. 4	160	4400
PLAYA DEL REY—		
Birch-Royer Oil Co., Lovell-Comm. 1	1000	6427
RINCON—		
N. C. Needham, Permit 55-2	900	3030
SANTA FE SPRINGS—		
Union Oil Co., Bell 37	100	5850
VENTURA AVENUE—		
Shell Oil Co., Taylor 62	800	5665

OKLAHOMA

Company, Well and Location	Initial Production Bbls.	Depth
COMANCHE COUNTY—		
Max Pray Oil Co., Kline 1a, ne c 8-3n-10w	*	894
CREEK COUNTY—		
Pioneer Pet. Co., Bucktrot 15, se c ne 24-17-10e	¶¼	1548
O'Hair and Foster, Stanley 1, sw c nw 4-17-10e	*	3143
HUGHES COUNTY—		
Boettcher O&G Co., Walker 1, c nw sw 11-7-8e	¶35	2911
LINCOLN COUNTY—		
Coline Oil Co., Tilford 2, sw nw se 7-14-4e	3910	4982
McINTOSH COUNTY—		
J. S. Routt et al, Wolf 1, csl ne se 34-12-15e	*	1240
MUSKOGEE COUNTY—		
Hall and Ray, Scott 1, se nw sw 30-12-19e	*	1002
OKFUSKEE COUNTY—		
A. Moffitt et al, Summers 4, sw c nw nw 8-11-12e	*	1420
OKLAHOMA COUNTY—		
Champlin Ref. Co. et al, Townlot 1, ne c sw sw se 3-11-3w (4)	5650	6301
Phillips Pet. Co., Davis 1, cel ne se nw 10-11-3w	9785	6317
Westgate Oil Co., Carey 1, se ne se 34-12-3w	8625	6261
Thomas B. Slick Estate, Egbert 1, sw c se se se 34-12-3w	8065	6225
OKMULGEE COUNTY—		
Mack Drlg. Co., McKay 1a, sw c se se 24-16-14e	*	2050
SEMINOLE COUNTY—		
Burke-Greis Oil Co., Henshaw 3, nw ne sw 30-8-8e	1450	3764
Pierce et al, Phillips 1, sw c se 8-9-6e	295	4215

KANSAS

Company, Well and Location	Initial Production Bbls.	Depth
COWLEY COUNTY—		
Roth and Faurot, Brant 4, sw c ne 12-32-4e	250	2548
HARVEY COUNTY—		
Empire O&R and Shell, Seiler 1, nw c se 23-23-2w	*	3556
McPHERSON COUNTY—		
Vernon O&G and Shell, Drum 1, ne c 35-19-2w	360	2960
United Pet. Co. & Sinclair, Loquemont 1, ne nw se 20-19-1w	¶23	2920
Carter Oil Co., Lagree 1, se c 17-19-1w	¶27	2903
Washoma Pet. Co., and Shell Pet., Meeks 1, (owd) nw ne sw 7-20-1w	1850	2976
Palmer, Phillips and Shell, Winn 2, sw se nw 7-20-1w	2770	2977
MORRIS COUNTY—		
Loomis et al, Munsell 1, c sw se 15-16-7e	¶1	436
RICE COUNTY—		
Graham Bros. and Barnsdall, Turner 1, nw c sw 28-20-10w	*	3330

EASTERN STATES

PENNSYLVANIA

Company, Well and Location	Initial Production Bbls.	Depth
ALLEGHENY COUNTY—		
Lorish Oil Co., Lorish 3	1	2252
BEAVER COUNTY—		
Hoffs Oil Co., Cooper 1	¶¼	1450
GREENE COUNTY—		
Carnegie Natural Gas Co., Bowers 2	¶1	3052
Greensboro Gas Co., Minor 1	¶1½	3275
Manufacturers Light & Heat Co., McGinnis 1	¶1¼	1422
WASHINGTON COUNTY—		
H. Furman & Co., Montgomery 1	*	....
John Reed & Co., Patterson 2	¶¾	1069

WEST VIRGINIA

Company, Well and Location	Initial Production Bbls.	Depth
CALHOUN COUNTY—		
C. B. Lewis & Co., Summers 1	*	1850
L. P. Bickel, Bennett 1	¶¼	2188
Tierney & Cain, Poling 1	1	....
CABELL COUNTY—		
Larner Gas Co., Swan P-86	¶1	....
HARRISON COUNTY—		
Raad & Moses, Shahan 1	1	2791
KANAWHA COUNTY—		
United Fuel Gas Co., Huffman 563	¶1	....
MINGO COUNTY—		
Frank Yates, Fee 1	¶½	1132
MARION COUNTY—		
South Penn Oil Co., Stewart 5	¶1	2071
MARSHALL COUNTY—		
Valley Oil & Gas Co., Peterson 1	¶½	3020
TYLER COUNTY—		
Clifton Oil & Gas Co., Cain Hrs. 4	¶¼	2106
H. Underwood, Williams 1	*	1850
WETZEL COUNTY—		
Moorehead & Null, Bartrug 1	¶¾	2967

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
JEFFERSON COUNTY—		
Chas. R. Jones, Lewis 12	10	1597
NOBLE COUNTY—		
Chas. Knott, Archibald 1	*	830
Shay McMullen, Cline 1	¶¼	1813
WASHINGTON COUNTY—		
John T. Cleary & Co., Morningstar 3	2	....
High Ridge Gas Co., Augonstein 4	¶¼	1254

CENTRAL OHIO

Company, Well and Location	Initial Production Bbls.	Depth
COSHOCTON COUNTY—		
Preston Oil Co., Mikesell 1	*	3288
BELMONT COUNTY—		
Carrie J. Smith & Co., C. Smith 1	*	1402
C. D. Crough & Co., Litton 4	*	1922
MEDINA COUNTY—		
Henner & Co., Geisinger 6	*	383
Edson Sons Co., Frank 18	20	459
C. L. Williams & Co, Chapman 2	¶¼	....
VINTON COUNTY—		
Co-operative Oil Co., Moore 1	¶½	1149
SUMMITT COUNTY—		
Eagon & Co., Selzer 1	¶1¾	4025

NORTHWESTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
HARDIN COUNTY—		
Wiser Oil Co., Geiger 4	90	....
Abbott Bros. Oats 1	¾ 25	....
The Kemrow Co., Radabaugh 1	*	1480

KENTUCKY

Company, Well and Location	Initial Production Bbls.	Depth
OHIO COUNTY—		
Kentucky Natural Gas Co., Griffith 7	*	785

MICHIGAN

Company, Well and Location	Initial Production Bbls.	Depth
MIDLAND COUNTY—		
Kalamazoo Improvement Co., Harnick 1	500	3540

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
RICHLAND PARISH—		
Hope Prod. Co., C. M. Noble 2, 36-16-5e	¶28	2400
Southern Carbon Co., O'Neal 1, 36-17-6e	¶45	2429

LOUISIANA GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BAYOU BLUE—		
Standard Oil Co. of La., L. Baist Cooperage 1	*	3855
BAYOU BOUILLON—		
Humble O&R Co., State 4	*	5248
HACKBERRY—		
Federal Pet. Co., Hebert 2	*	5602

TEXAS GULF COAST

Company, Well and Location	Initial Production Bbls.	Depth
BARBERS HILL—		
Humphreys Corporation, E. H. Winfree 2	1800	5627
ESPERSON DOME—		
Cranfill-Reynolds Co., Kirby 1-C	*	6158
GOOSE CREEK—		
Gulf Prod. Co., Gilliard 42	140	4300
HANKAMER—		
Gulf Prod. Co., Boyt 13	1500	3810
HUMBLE—		
Sun Oil Co., Bender 23	*	4807
STRATTON RIDGE—		
Rycade Oil Corp. & Amerada Pet. Corp. Seaburn 2	*	7624
TYLER COUNTY—		
L. H. Wentz, Long Bell Lbr. Co. 1	*	4205
WHARTON COUNTY—		
Pool & Chappel, Lee 1	*	757

CENTRAL EAST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
ANDERSON COUNTY— (Boggy Creek)—		
Humble O&R Co., A. E. Todd 3-B	100	3625
JOINER FIELD—		
Beard & Hammond, Inc., Kellins 1	8000	3783
R. T. Belcher et al, A. Thrash (8-ac) 1	5000	3745
Bill & Dave Oil Co., Young 2	8000	3750
C. P. Oil Co. (Roy I. Carter), Giles 3	4000	3733
Cranfill-Reynolds Co., Keeling 1	6000	3796
Gulf Prod. Co., O'Quinn 1	7500	3752
E. E. Thrash 1	9000	3792
E. E. Thrash 2	5000	3792
Herring et al, Deason 1	2500	3727
Humble O&R Co., M. L. Thompson 1	5000	3706
C. M. Joiner (E. R. Tennant, Rec.) H. Brooks 3	5000	3705
H. Brooks 4	7500	3731
LaSalle & Davenport et al, T. L. Kinney 1	5000	3647
J. F. Lucey Pet. Co., B. F. Maxwell 1	10,000	3715
John Mabee, Inc., W. P. Brett 2	6000	3723
J. R. McMurray (Arjamic Oil Co), Blackwell 1	12,000	3688
Roeser-Pendleton, Inc., M. Pool 1	5000	3721
Bert J. Shaw Oil Co., Ras Pool 1	10,000	3722
Lum Tolliver 1	6000	3720
Sinclair O&G Co., J. B. Wilson 1	8000	3664
The Texas Co., M. Blackwell 1	6000	3711
Texas Trading Co., Deason (6-ac) 1	4500	3653
Tidal Oil Co. (was Fitzsimmons-Thomason), Irion 1	10,000	3710
Turman Oil Co., Deason 4	2000	3702
KILGORE FIELD—		
J. S. Abercrombie-Harrison Oil Co., Cantrell 1	10,000	3708
Bell & Graddy, Inc., W. Daniels 1	*	2770
Collin & Helis et al, Birdsong (5-ac), 1	8000	2640
Daniels-T. C. Patton (Nat'l Securities Corp), Knowles 1	1000	3586
Harry W. Elliott et al, M. R. Terrell (5-ac), 1	3000	3764
A. H. Gibson-Adams et al, Collier-Collins 1	5000	3616
Golding-Murchison Oil Co., Brock 1	15,000	3663

(Continued on page 76)

Just *off* the press

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for

Office, Field and Factory

by

HOLLIS P. PORTER

Member of

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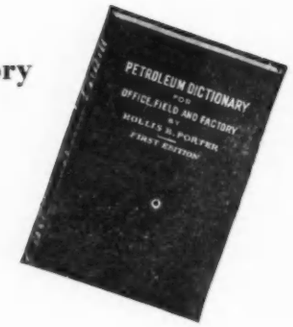

FIRST EDITION

Before deciding to publish this dictionary, a thorough search was made by the author while preparing lectures to be delivered to the students of the Petroleum Engineering School of The University of Tulsa, which revealed that there was no publication which defined in a satisfactory manner many of the words and terms used in the several departments of the petroleum industry. It was also observed, that many employees in offices were in need of a ready reference which would give them some light as to the meaning of technical as well as non-technical expressions, and words so often found in correspondence by and between individuals of the several departments of the industry. These facts furnished the inspiration for this publication. It is often difficult, and in many cases impossible, even with the best library facilities to find definitions for many of the words which have recently been introduced. This may cause some difficulty in understanding the meaning to one unfamiliar with the subject, or, to a particular branch of the industry.

This dictionary is offered to those who are employed or interested in the petroleum industry for the purpose of removing this difficulty.

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P. O. Box 1307 **Houston, Texas**

(Continued from page 75)

Company, Well and Location	Initial Production Bbls.	Depth
Gulf Coast Oil Co., Brightwell 3	8000	3612
Gulf Prod. Co., W. P. Brightwell 3	10,000	3612
W. Jernigan 1	9000	3645
Houston Oil Co., W. R. Crim 3	10,000	3726
Dave Ladd 1	5000	3665
Pat Hudson-McCamey-Denton & Marshall, Smith 1	15,000	3612
Humble O&R Co., L. D. Crim 20	6000	3598
R. H. Laird 1	10,000	3645
D. M. Peterson 7	5000	3606
Ed. M. Jones et al, Peterson 1-B	6000	3640
Killam & Hines, McNealy 1	12,000	3663
Magnolia Pet. Co., W. P. Moore 1	12,000	3665
Dick Wells 1	10,000	3678
Chas. McDonald (Shoreline Oil Co.), Brightwell 1	7000	3650
Moody-Seagraves Oil Prod. Co., J. H. Palmer 1	8500	3679
Marine Corp., Bean 3	10,000	3630
Republic Prod. Co., H. P. Leverett 1	15,000	3685
J. B. Watson 1	10,000	3631
Snowden & McSweeney Co., F. Bean 1	4000	3663
H. R. Smith-Gulf Prod. Co., Peterson 4	7500	3620
Stanolind O&G Co., M. R. Terrell 2	12,000	3617
Sun Oil Co., Ed. Barker 1	4000	3748
Stroube & Stroube, Morse-Brightwell 1	6000	3619
Turner & Swift, S. C. Sanders 1	12,000	3777
Wainwright-West Oils, Ltd., J. B. Watson (3½-ac), 1	12,000	3615
Whittle & Kavenaugh No. 2, Inc., Wason 1	9600	3620
Wise & Jackson, Dickson 1	6500	3696
Woodley Pet. Co., Joe Ladd 2	10,000	3644
LONGVIEW FIELD—		
Arkansas Fuel Oil Co.-Yount Lee Oil Co., Lathrop 4-A	6000	3555
Joe Crump & Hanagan (now East Texas Ref. Co.),Nettleton 2	6500	3558
Columbia O&G Co. (was Rush Bros), Harley 1	8000	3616
F-H-E Oil Co., J. F. Flemister 1	10,000	3638
F. & M. Drlg. Co., Blackstone 1	10,000	3574
Lucey Pet. Co., R. Christian 1	8000	3588
Mid-Kansas O&G Co., J. J. Castleberry 1	12,000	3605
Roeser-Pendleton, Inc., J. P. Fenton 1	9600	3617
Stanolind O&G Co.-Simms Oil Co., Thad Snoddy 1	11,000	3522
Woodley Pet. Co., L. Walker 1	10,000	3624
Texas Pacific Coal & Oil Co., Fee 1	20,000	3626
VAN FIELD—		
Pure Oil Co., F. B. Smith 6	5000	2910
W. H. Cook (86-ac) 3	*	3031
J. T. Thompson (50¾-ac), 11	6000	2941

NORTH TEXAS

ARCHER COUNTY—		
R. J. Brown et al, Pruitt 1	*	851
C. W. Clark et al, A. J. Lowe 1-A	*	1283
T. F. Hunter Oil Corp., Hausler 1	*	1151
Paul Trahan et al, G. T. Netherton 1	*	250
J. H. Wilson et al, White 1	*	1600
BAYLOR COUNTY—		
Douglas Oil Co., A. F. Robertson 1	*	2440
COOKE COUNTY—		
Comail Oil Co., Potter Bros. 1	*	2015
Scott & Harvey, Jacobs 2	5	1582
HASKELL COUNTY—		
C. F. Fischer et al, Fee 1	*	750
THROCKMORTON COUNTY—		
Cox & Henderson Oil Co., McKeichen 1	*	891
YOUNG COUNTY—		
McClung & Dawson, G. N. Hunter 2	*	634
Putnam Oil Co., Jeffery 2	*	931
Pennell & Harris, Cantwell 1	*	555
E. Shamblin et al, C. J. Taack 1	*	950
I. E. Silkwood et al, Clark 1	*	900
Sam Simmons et al, Kennedy 1	*	600
The Texas Co., E. P. Tatum 1	55	660
Wise & Jackson, Brown 1	*	535
W. C. Young et al, J. Thomas 1	*	1012

Permits Granted for New Wells

▼ ▼ ▼

CALIFORNIA

ELWOOD — Pacific Western Oil Co., No. 92-8, 16-4-29.

IMPERIAL COUNTY—D. H. Wood, Melson 1, 7-11-16.

LOS ANGELES COUNTY — McCoy and Associates, No. 1, 28-4-13; No. 2, 28-4-13; No. 3, 28-4-13; No. 4, 28-4-13; No. 5, 28-4-13; No. 6, 28-4-13; No. 7, 28-4-13; No. 9, 28-4-13; No. 10, 28-4-13; No. 11, 28-4-13; No. 12, 28-4-13.

RIVERSIDE COUNTY—Frank Beck No. 2, 143-1.

SAN LUIS OBISPO COUNTY—Cities Service Pet. Co., No. 1, 20-28-21.

KANSAS

GREENWOOD COUNTY — Harwood Oil Co. et al, Best 1, ne c se 28-23-11e.

MARION COUNTY—Youker et al, Riffel 3, ne nw nw 11-17-4e.

McPHERSON COUNTY—Lario O&G and Shell, Wiggers 2, nw c ne 36-19-2w; Lario O&G and Shell, Wiggers 1, (owd) ne c 36-19-2w; Lario O&G & Shell, Suffield 2, s, sw c se 25-19-2w.

SEDGWICK COUNTY—Magnolia Pet. Co., Wheeler 5, sw ne ne 19-27-2e.

SUMNER COUNTY—J. P. Tighe, Thieson 1, nw se se 22-34-2e.

OKLAHOMA

CREEK COUNTY—Hoover Brothers, Briggs 1, nw ne nw 36-19-8e.

JEFFERSON COUNTY—Monarch Pet. Co., Briggs 1, sw c, 36-3s-4w.

McINTOSH COUNTY—J. S. Routt et al, Fife 2, c nw se 10-11-15e.

MUSKOGEE COUNTY—Mack Drilling Co., Richards 6, se c ne se ne 33-16-15e.

OKFUSKEE COUNTY—Keaton, Gold and Stanolind O&G, Harjo 1, se c sw 7-12-11e.

OKLAHOMA COUNTY—I. T. I. O., Ivanjoe 3, nw c se ne 15-11-3w. Phillips Pet. Co., Mosey 2, se ne nw 3-11-3w. Phillips Pet. Co., Clife 1, nw c ne 3-11-3w. Wilcox, Marshall and Butcher, Terminal 1, sw sw nw 3-11-3w. Plains-Capitol Prod. & Ref., Travis 1, se c nw 15-11-3w.

OKMULGEE COUNTY—Denton and Marshall, Belano 1, ne c nw se 5-14-14e.

PITTSBURG COUNTY—National Royalties Co., Foss 1, nw c sw 17-7-18e.

SEMINOLE COUNTY—Burgher O&G et al, Charley 1, sw nw se 18-8-6e.

TEXAS PANHANDLE

CARSON COUNTY—		
Interstate Prod. Co., T. I. Coffee 1	¶20	2832
GRAY COUNTY—		
Skelly Oil Co., Heaston 1	500	3292
Stanolind O&G Co., Cobb 2.....	480	3272
MOORE COUNTY—		
Plains Holding Co., Bivins 1	¶45	2700
HUTCHINSON COUNTY—		
Antelope Creek Oil Co., Sanford 4..	*	3176

WEST TEXAS

PECOS COUNTY—		
Cardinal Oil Co., Tippett 8-E.....	240	487
Corvette Oil Corp., Monroe 3	700	460
UPTON COUNTY—		
Gulf Prod. Co., McElroy 93 270		2985

SOUTH TEXAS

DUVAL COUNTY—		
Magnolia Pet. Co.'s Wilson 3	300	2394
The Texas Co.'s Bishop Duval Land Co. 1	300	2384
FRIO COUNTY—		
Wray & Dunbar's Barnes 1	*	3708
NUECES COUNTY—		
Houston Oil Co.'s Purl 1	¶40	4849
REFUGIO COUNTY—		
United Prod. Co.'s Fox 1-A	800	5878
W. H. Heard 6	100	3674
WILLIAMSON COUNTY—		
Lanning & Noack 5 1000		....
ZAPATA COUNTY—		
O. W. Killam's Bustamante 7	40	1253
Neilson & Coursey's Luther 1	*	1320

For Tabulation and Comparison See Market Section

TULSA COUNTY — West Petroleum Co., Edwards 10, (owd) ne c sw sw 1-18-12e.

WAGONER COUNTY — Tulsa Drlg. Co., Harrison 1, sw c nw sw 14-18-17e.

TEXAS

BELL COUNTY—Vilas Oil Co., Rockdale, B. F. Whittington, 145, 1, M. Davilla sur, 150 ft from n and w lines.

BROWN COUNTY—H. W. Peck et al, Brownwood, H. L. Muse, 198, 1, Jas. Grant sur, 450 ft from e and 1000 ft from s line.

BROOKS COUNTY—O. C. Woods, Mission, J. G. Ramos, 40, 1, S 3, No. 1 La Mestena sur, nw cor of blk 10.

CALLAHAN COUNTY—Whiteley & Samples, Baird, E. L. Finley, 80, 2, S 13, D&D Asy sur, 735 ft from w and 1200 ft from s line w½ of w¼.

CASS COUNTY—Fraley & Nicholson, Dallas, R. Bryan, 88, 1, A. H. Latimer sur, 843 ft from w and 290 ft from s line.

COLEMAN COUNTY—E. L. Smith Oil Co., Mexia, H. Thate, 80, 1, No. 171, A. Area sur, 150 ft from n and w lines. Arcadia Refg. Co., Coleman, F. Golson, 80, 10, No. 164, I. Harris sur, 300 ft s of No. 8; 8, 528 ft from n and 150 ft from w line. F. A. Lane, Cross Plains, O. Wagner, 50, 1, No. 164, I. Harris sur, 150 ft from s and w lines.

CRANE COUNTY—C. C. Duffy et al, Midland, McClintic, 4, S 206, B F, CCSD&RGNG sur, sw corner.

GREGG COUNTY—Texas Co., Houston, W. Baxter, 50, 1, M. Scott sur, 150 ft from s and e lines. Lacy Pet. Co., Longview, T. D. Anderson, 13, 1, S 8, B E, G. W. Hooper sur, 175 ft w of center of e line. O. L. Hickman, Shreveport, C. H. Moore, 15, 1, M. Dillard sur, 150 ft from s and 450 ft from e line. Empire G&F Co., Wichita Falls, O. Lockhart, 75, 1, R. W. Warrener sur, 150 ft from s and e lines. Sinclair O&G Co., Fort Worth, M. Moncrief, 252, 3, W. H. Castleberry sur, 196 ft from n and 1935 ft from e line; 4, 250 ft from n and 145 ft from e line. Arkansas Fuel Oil Co., Shreveport, J. C. McKinley, 106, A2, Wm. Robinson sur, 170 ft from n and 260 ft from e line. Roeser & Pendleton, Inc., Fort Worth, G. Pool, 31, 2, M. J. Pru sur, 390 ft from w and 185 ft from s line. Nat Hunter Prod. Co., Tyler, S. G. Andrews, 29, 1, J. T. McDaniel sur, 150 ft from s and w lines; 2, 150 ft from n and w lines. W. L. Knight et al, Breckenridge, J. G. McGrede, 18, 1, D. Sanchez sur, 111 ft from e and 92 ft from s line. Baggett Bros. & Ward, Tyler, J. Samples, 14, 1, W. P. Chisum sur, 150 ft from s and w lines. E. L. Smith Oil Co., Mexia, T. Clemmons, 55, 1, D. Sanchez sur, 300 ft from s and w lines. Magnolia Pet. Co., Dallas, W. B. Goyne, 31, 1, J. T. McDaniel sur, 150 ft from s and w lines. Arrowhead Oil Corp., Corsicana, G. W. Richey, 5, 1, Wm. Carlton, R. W. Perkins, Marshall, J. G. McGrede, 6, 1, D. Sanchez sur, 210 ft from s and w lines. Gulf Prod. Co., Houston, B. Watson, 78, 2, J. S. Caruthers sur, 205 ft from n and 150 ft from e line. Woodley Pet. Co., Shreveport, E. Magrill, 22, 1, D. Sanchez sur, 262 ft from e and 300 ft from s line. Columbia O&G Co., Dallas, A. Christian, 17, 1, G. W. Hooper sur, 150 ft from w and 450 ft from s line.

GAINES COUNTY—Landreth Prod. Corp., Fort Worth, N. Alley, 640, 1, S 2, B A30, 660 ft from n and w lines of sec.

GRAY COUNTY —Kewanee O&G Co., Tulsa, Morse, B, 80, 2, S 17, B A9, H&GN sur, 316 ft from s and e lines of s½ of sw¼; Morse, B, 7, S 2, B 26, H&GN sur, 330 ft from n and w lines of nw¼.

GRAYSON COUNTY—Harris & Maun, Inc., Blackwell, Okla., Graco Co., 790, 1, McMullin-McGloin sur, 1500 ft from w and 2200 ft from s line. F. H. E. Oil Co. & Flemming & Kimbell ,Fort Worth, H. C. Potts, 200, 1, I. Southward sur, 200 ft from n and 600 ft from w line.

GUADALUPE COUNTY—H. J. Bruner, San Antonio, S. H. Sherrell, 55, 1, Geo. Allen sur, 150 ft from n and 1360 ft from e line. A. C. Linne, Seguin, J. E. Linne, 80, 1, D. Gotari sur, 200 Vs from s and e lines.

HARRISON COUNTY—Wm. H. Atkinson, Oklahoma City, A. F. Hays, 44, 1, J. A. Chaffin sur, 150 ft from n and 873 ft from w line.

NACADOCHES COUNTY—E. L. Chapman, Fort Worth, Tilford-Hunt, 62, 1, S. Strode sur,

Picture taken on The Texas Company's J. F. Wilburn 5 at Barbers Hill, Texas. Reading left to right: Frank Kinzback, president, Kinzback Tool Company, Houston; J. J. Dean, shop foreman of The Texas Company, Houston territory; H. F. Hickson, derrick man; V. C. Jones, helper; Leonard L. Tipton, driller

200 ft from n and w lines. Foreman-Weller, Nacadoches, E. E. Metteauer, 100, 1, J. A. Chireno sur, 550 ft from n and 770 ft from w line.

PALO PINTO COUNTY — Burton-McKee Oil Corp., Strawn, Allen, 17, 1, I. Ryan sur, 200 ft from n and 515 ft from w line. Britton & Gordon, Strawn, Strawn Coal Co., 360, 3, I. Ryan sur, 550 ft from n and 3100 ft from w line.

PECOS COUNTY — Penn Oil Co., Dallas, R. D. Webb, 540, 1, S 105, B OW, 3000 ft from n and 1000 ft from w line of sur.

RUSK COUNTY—Sinclair O&G Co., Fort Worth, M. Kennedy, A, 63, 1, Hobson sur, 180 ft from s and 220 ft from e line. Humble O&R Co., Houston, S. S. Laird, 230, A7, I. Ruddle sur, 195 ft from e and 2071 ft from s line. J. N. Peterson, 112, 8, W. P. Chisum sur, 155 ft from w and 441 ft from ne line. L. D. Crim, 628, 22, E. G. Sevier sur, 177 ft from e and 1507 ft from s line. G. J. Thompson, 116, 2, M. J. Pru sur, 283 ft from n and 256 ft from w line. S. S. Laird, 230, A6, I. Ruddle sur, 160 ft from e and 2725 ft from s line. J. E. Mabee Co., Tulsa, J. P. Maxwell, 81, 1, I. G. Parker sur, 150 ft from n and w lines. Brett, 40, 2, M. J. Pru sur, 200 ft from n and w lines. Lewis Prod. Co., Wichita Falls, D. Wills, 40, 1, W. Chisum sur, 238 ft from n and 200 ft from w line; 2, 238 ft from n and 150 ft from e line. Blackwell O&G Co., Cushing, Okla., S. P. Moore, 17, 1, M. J. Pru sur, 300 ft from e and 200 ft from s line. Tulsa Oil Co., Tulsa, Kangera, 20, 2, M. J. Pru sur, 258 ft from n line and 250 ft from e line. Gulf Prod. Co., Houston, M. E. Peterson, 92, 6, I. Ruddle sur, 152 ft from n and 299 ft from w line. Leonard Pet. Co., Pittsburgh, Penna., S. Tabolowski, 100, 1, J. L. P. Meredith sur, 350 ft from w and 1450 ft from s line. Harrison Oil Co. & Abercrombie, Houston, M. A. Cantrell, 53, 6, R. E. Winn sur, 150 ft from s and e lines. Cordova-Union Oil Co., Fort Worth, J. S. Bean, 49, 1, J. Lewis sur, 233 ft from n and 150 ft from w line. Snetcher & Pittman, Fort Worth, E. J. Cox, 36, 2, R. H. Penny sur, 150 ft from n and w lines. Texas Co., Houston, J. D. Stone, 50, 1, M. J. Pru sur, 150 ft from n and e lines. L. J. Pinkston, 80, 1, J. B. Cadona sur, 150 ft from n and e lines. Federated Oil Co., Wichita Falls, W. M. Camp, 15, 4, J. Ximinez sur, 200 ft from n and w lines. G. L. Pace, Dallas, A. F. Deason, 20, 1, M. J. Pru sur, 150 ft from s and w lines. Magnolia Pet. Co., Dallas, W. P. Moore, 162, 2, J. Ellington sur, 430 ft from s and w lines. East Texas Refg. Co., Dallas, W. B. Giles, 15, 2, M. J. Pru sur, 300 ft from n and 167 ft from w line. D. Wills, 83, 7, Wm. Chisum sur, 200 ft from n and 1575 ft from w line. E. Stoll, Fort Worth, Dunklin, 5, 1, J. Ximinez sur, 150 ft from s and w lines; 2, 150 ft from s and e lines. Westheimer & Daube, Ardmore, Okla., W. T. Brightwell, 18, 1, E. G. Sevier sur, 250 ft from n and e lines. Luling O&G Co., San Antonio, W. H. Frederick, 10, 1, J. Ximinez sur, 150 ft from s and w lines. W. P. Brightwell, 10, 2, R. E. Winn sur, 150 ft from n and e lines. Gulf Coast Oil Co., Houston, W. J. Brightwell, 89, 4, Winn-Smith sur, 153 ft from n and 150 ft from w line; 5, 885 ft from n and 256 ft from e line. Wade Reynolds Synd., Dallas, W. P. Brett, 10, 1, F. Cordova sur, 150 ft from n and e lines. Nat Hunter Prod. Co., Tyler, J. P. Buntyn, 43, 3, Snow-Simms sur, 335 ft from e and 183 ft from s line. J. P. Buntyn, 17, 4, J. C. Snow sur, 770 ft from e and 532 ft from n line. J. P. Buntyn, 43, 5, Snow-Simms sur, 150 ft from s and e lines. Foster, Jeffries & Crabtree, Tyler, C. C. Giles, 33, 1, M. J. Pru sur, 150 ft from n and e lines. Owenwood Pool No. 3, Fort Worth, C. M. Mullins, 30, 1, Cordova sur, 450 ft from w and 150 ft from s line. Gilcrease Oil Co., Tulsa, D. Bradford, 40, 4, J. Ximinez sur, 220 ft from w and 180 ft from s line.

RED RIVER COUNTY—Concord Oil Co., Dallas, J. R. Dillahunty, 168, 1, I. Moore sur, 200 ft from n and w lines.

SMITH COUNTY — E. H. Chapman, Fort Worth, Alexander, 240, 1, J. K. Carson sur, 330 ft from n and w lines. Sinclair O&G Co., Fort Worth, R. G. Wright, 100, 1, J. Vargas sur, 250 ft from n and e lines. Bailey Gaunce et al, Tyler, S. S. Cook, 20, 1, B 5, J. Vargas sur, 150 ft from s and w lines. A. W. Phillips, Tyler, A. B. Morrison, 16, 1, R. M. Smith sur, nw corner. Sinclair O&G Co., Fort Worth, G. Patterson, 153, 1, J. Vargas sur, 300 ft from e and 150 ft from s line.

SHACKLEFORD COUNTY — Worth Pet. Co., Fort Worth, E. A. Jeter 80, 1, S 14, B 11, T&P sur, west central part of lease.

SHELBY COUNTY—E. L. Chapman, Fort Worth, Pickering, 1, R. W. Donahue sur, 1500 ft from n and 1000 ft from e line.

TRAVIS COUNTY—C. R. Franklin, Austin, J. Wilson, 79, 2, A. Alexander sur, north central part of lease.

UPSHUR COUNTY—J. M. Burnham, Fort Worth, D. Beck, 38, 1, H. W. Augustine sur, 376 ft from w and 1150 ft from s line survey.

VAN ZANDT COUNTY — Pure Oil Co., Fort Worth, B. W. Russell, 168, 1, D. Rose sur, 650 ft from e and 150 ft from n line. Humble O&R Co., Houston, R. S. Blake, 201, 12, J. Walling sur, 150 ft from n and 3040 ft from e line.

VICTORIA COUNTY — Houston Oil Co., Houston, H. B. Konrad, 1, No. 1, T&NO sur, 550 ft from n and 1000 ft from w line of sur.

WICHITA COUNTY—S. H. Walton, Electra, P. G. Krohn, 40, 9, B 226, Wag. Col. sur, 500 ft from s and e lines.

WHARTON COUNTY—Pool & Chappell et al, Wharton, J. N. Lee, 320, 1, S 20, GH&H sur, 15 ft from s and w lines.

YOUNG COUNTY—H. W. Lee et al, Wichita Falls, S. R. Jeffrey, 14, 2A, S 42, TE&L sur, 150 ft from n and 450 ft from e lines. McClung & Dawson, Cisco, G. N. Hunter, 80, 2, 290, TE&L sur, 600 ft from e and 550 ft from s line. I. E. Silkwood, Wichita Falls, L. Clark, 100, 1, 209, TE&L sur, 450 ft from n and 1000 ft from w line. Putnam Oil Co. & Panhandle O&R Co., Cisco, S. R. Jeffrey, 80, 2, S 52, TE&L sur, 150 ft from s and w lines of nw¼.

ZAPATA COUNTY—O. W. Killam, Laredo, A. Bustamente, 40, 7, No. 5, Comitas sur, 450 ft from s and w lines of blk 7.

Some rapid work on the Phillips gasoline line from the Texas Panhandle north to Chicago

A strong bid for safety—this sign stands for the record made by Standard Oil Company of California in the 11-C Division at Taft, California

LOUISIANA

CALCASIEU PARISH — Freeport Sulphur Co., Freeport, Texas, Vinton Dome 6, 4-10s-12w, 1800 ft e and 75 ft n of sw cor of section.

CLAIBORNE PARISH—The Leue Oil Co., Washington, D. C., Mrs. M. J. Kinier 1, 2-21n-7w, 642 ft e and 154 ft n of sw cor of se¼.

DE SOTO PARISH—Rellitt O&G Co., Logansport, Gannon Hrs. 1, 12-11n-16w, 300 ft s and 300 ft e of nw cor nw¼ of ne¼.

PLAQUEMINE PARISH — Humble O&R Co., New Orleans, Cockrell Moran,—-21s-26e, 2790 f tw and 8070 ft n of ne cor of T. 21s.

RED RIVER PARISH—Mack Jourdan Co., Coushatta, Lockett 1, 32-13n-10w, 4035 ft s and 1080 ft e of nw cor of sw¼ of sec. 29 in sec. 32.

RICHLAND PARISH—United Carbon Co., Monroe, M. A. Cooper 2, 13-16n-6e, 990 ft s and 1751 ft w of e¼ cor of section.

Wildcat Reports From All Sections

MONTANA

BIG HORN—Continental Oil Co., Lynde 2, se 21-6s-35e, sd 3405 ft.

CARBON—Spomont Pete Co.'s Cruse 1, 32-6s-18e, dr 100 ft.

CASCADE—Andover Oil Co.'s Floweree 1, se 29-21-2w, run cas and co, td 1405 ft. Lone Star Oil Co.'s McLean 2, se 13-21-3e, spd.

CHOTEAU—Northern State Oil Co.'s Woodward 1, sw 20-14n-24e, dr ahead in wet hole 2400 ft. Melton Corp., 24-21n-17e, cas set 2825 ft, dr ahead. Pownam Oil Co., 24-19-11e, fsh 150 ft. Williston-Shelby O&G Co., Flack 1, ne 12-28-11, wso 2830 ft.

GALLATIN—Gallatin Valley Oil Co., nw 1-1n-4e, dr bel 330 ft.

GLACIER—Fulton Pete Corp.'s Blackfeet 1, ne 28-36n-12w, dr bel 1560 ft. B. & H. Oil Co., Haines 1, se 2-34-6w, cem, wso, td 2762 ft. Jeffries-Hoerr's Dawson 1, ne 7-31-12w, resum 3000 ft. Montana Utilities Co., Hagland 1, sw 13-34-6w, sd 20 ft.

GOLDEN VALLEY—Texas-Pacific's 1, sw 21-8s-21e, hfw 4000 ft. J. F. Dealey et al's 1, ne 28-5n-22e, co.

LIBERTY—Northland O&G Co.'s Yurman 1, 32-33n-5e, dr 3600 ft. Sunburst, McLaren 1, se 8-37-6e, sd 3115 ft. C. Howard, Schoonover 1, se 18-36-6e, 7½M at 1985 ft.

PETROLEUM—Minnesota-Flatwillow, 7-11n-31e, cas cem 2560 ft, td 2600 ft.

ROSEBUD—Prairie O&G Co., 1-X, 26-10-39e, fsh tools and fight water, td 2415 ft.

TETON—Andover Oil Co.'s Carlson 1, 5-24-4w, stand 150 ft. California Co., Sullivan 1, nw 34-27-7w, rigging.

TOOLE—Liquid Gold Oil Co.'s Robert 1, ne 25-36-12, dr bel 2250 ft. International Roy. Hold. Co.'s Henry 1, sw 26-35-36, pulled 8¼-inch 2650 ft. A-1 Pete Co., se 24-36-1e, sd 1555 ft.

YELLOWSTONE—Peter Antonioli, 21-2n-25e, wait cas 1600 ft.

WYOMING

BIG HORN—Westland Oil, Inc., 24-54-95, gas at 150 ft. Wisconsin Holdings, 5-55-97, sd 665 ft. Yellowstone Pete Co.'s 7-87-97, sd 4080 ft.

CARBON—Midwest Refining Co., U. P. 1, 27-11-81, dr 2100 ft. Pete Expl. Co. of Calif., 29-23-89, abdg in sulfur water 2569 ft.

CONVERSE—Converse O&G Co., 27-33-72, sd 1410 ft. Pioneer Oil Co., 5-31-70, to dr new test.

FREMONT—Texas Prod. Co.'s State 1, 36-33-95, sd for orders 4485 ft. P. & R. 1, 33-34-92, sd 4906 ft. Yellowstone Oil Co.'s 1, 15-39-92, dr 600 ft. Ward Oil & Gas Co., 28-34-90, dr 2100 ft. Wiebolt et al, 2-35-99, dr 1525 ft in red beds.

HOT SPRINGS—Grebo Roy., Inc., 3-47-100, dr 150 ft.

JOHNSON—R. C. Tarrant et al, 4-43-82, dr bel 2150 ft.

LINCOLN—Mountain Oil Corp.'s 1, 36-25-116, td 1500 ft. Wyo. Prod. Co., 14-42-113, wait for 8¼-inch at 1555 ft.

NATRONA — Summit Oil Co., 21-33n-80w, sd 1220 ft, wait equip. Midwest's 11, nw 32-34n-77, stand 5340 ft. Cuyler Oil Co., 23-36n-85w, cas trouble at 1253 ft. Golden West Oil Co., 36-36-81, co 1265 ft. Midwest's Midway 1, ne 23-35n-79w, dr 6700 ft.

NIOBRARA—West Virginia Synd., 7-35-62, td 987 ft, cas trouble. Phillips Pete Co., sw se 32-34n-64w, oil show 375 ft.

PARK—Resolute Oil Co., 17-57-101, dr 8530 ft., flow by heads. Grebo Royalties, Inc., 3-47-100, resum at 100 ft.

SWEETWATER—Vermillion Oil Co.'s 1, se 16-12-99, mvg in to res 3465 ft.

UINTA—Park City O&G Co., nw 6-15-113, dr bel 2400 ft. Doheny interests, 6-14-118, resum 3216 ft.

WASHAKIE—Dakota-Wyoming Oil Co., ne 24-47-90w, show 200 ft, to be cased off. Ohio Oil Co., lot 14, 19-45-92, dr 3885 ft.

WESTON—LeFaivre Oil Synd., se 29-45n-68w, prep to cem 15½-inch at 1000 ft.

ABBREVIATIONS

NOTE—The following is the explanation of abbreviations, signs, etc., used in completion and wildcat reports: *—dry hole, abandoned well; ‡—salt water; †—junked and abandoned; ¶—million feet of gas; abn—abandoned; bbls—barrels; b.s.—basic sediment; cas—casing; co—cleaning out; dk—derrick; dr—drilling; fsh—fishing; ft—feet; in.—inches; lcn—location; m—milling; n, s, e, w—north, south, east, west; r—reaming; sd—shut down; sdtr—sidetracking; sp—spudding; sr—straight reaming; std—standardizing; sw—salt water; td—total depth; ur—underreaming; wo—workover; wosr—waiting on standard rig.

COLORADO

ADAMS — N. M. Slatt's 1, se 27-26-64w, carry 6⅝-inch at 3405 ft.

ARAPAHOE—McDebb Dr. Co.'s Fitzsimmons 1, 7-45-55, fsh tools 5805 ft.

BACA—A. R. Jones Oil & Optg Co., Boice Cattle 1, 22-34-42w, sidetr cas at 4965 ft, td 4815 ft.

EL PASO—Utemore Synd., Cannon 1, ne 10-16s-66w, sd 1125 ft.

GRAND—Oil Mineral Land, Inc., McElroy 1, sw 14-2n-81w, dr 586 ft.

HUERFANO—Parker Club, Inc., Fee 1, se 4-28s-68w, run 5 3/16-inch, td 4116 ft.

JEFFERSON—Ruby Hill O&G Co.'s Braden 1, se 24-4s-59w, dr 3912 ft.

LAS ANIMAS—Oklahoma Drlg. Ass'n, Radcliffe 1, ne 28-26-52, sd 100 ft.

LA PLATA—McGarr Pete Co.'s Pinon Mesa 1, ne 34-33n-12, location. Klem Pete Corp.'s Olbert 1, se 9-25n-12w, stand 3125 ft. Murchison Oil Co., Doescher 1, nw 28-33n-12, prep to res 1225 ft.

LINCOLN—Eastern Colo. Oil Corp.'s State 1, 36-14n-57w, ur 4¾-inch to 3380 ft.

MOFFAT—Mtn. Fuel Supply's State 2, tract 37-12-100, stand cem 2260 ft, 15M gas, td 2268 ft.

MONTEZUMA—G. H. Talcott et al's McElmo 1, 7-35n-16w, sd 635 ft. Haller et al, Carr 2, sw 33-36n-14w, on second hole, td 186 ft.

MONTROSE—Uncompahgre O&G Co., Title & Trust 2, 27-50n-10w, dr 900 ft.

MORGAN—Ind. Terr. Illum. Oil Co.'s State 1, ne 16-1n-57w, sd to install rotary 4090 ft.

PUEBLO—Anchor Oil Co.'s Easley 1, sw 35-22s-57w, dr 528 ft.

PARK—So. Park Oil Co.'s Milligan 1, se 13-9s-76w, dr 202 ft. So. Park O&G Co.'s Easche 1, ne 5-9s-76w, dr 1960 ft.

RIO BLANCO—California Co.'s Raden 1, se 30-2n-102w, prep to spud. Magnolia Pete Co., Maddock 1, se 9-2s-96w, mvg in.

WASHINGTON—Middlemist Oil Co.'s Middlemist 1, se 14-4-56, stand 1510 ft.

WELD — Reiter-Foster and Platte Valley Pete Corp., Johnson 1, nw 24-6n-61w, dr 1000 ft.

NEW MEXICO

CHAVES—Warman Oil Trust, Siebert 1, ne 27-13-24, sd 2268 ft. Neal et al., Russell 1, nw 21-14-25e, fsh 2320 ft, making repairs.

DE BACA—Matador Oil Co.'s Wood 1, se 6-4n-20e, dr 3060 ft.

GUADALUPE—N. M. Prod. & Ref. Co., McMullen 1, 24-5n-16e, ready to spud.

HARDING—Kummbaca O&G Co., Kerlin 1, se 34-21s-30e, dr 1245 ft.

LUNA—Angelus Oil Mining Ass'n 1, se 20-21s-10w, wtg cas 6085 ft.

McKINLEY—J. W. Halsell's Santa Fe 1, 17-18-9w, sd 3255 ft. Wms et al's A. T. S. F. 1, se 19-18n-8, stand 1900 ft. United Kern Pete Inc., sw 1-18n-11w, lcn. Dysart et al, Dysart 2, ne 14-14n-10w, prep to set 8¼-inch at 1285 ft.

MORA—Fulton Pete Co.'s Santa Fe Diox-Ice Co., Wagonmound 1, ne 14-19-21, dr 835 ft.

OTERO—Ernest et al's 1, se 20-25s-7e, wtg for equip. at 1005 ft. Pasctero Oil Corp., Dexter 1, nw 22-24s-12e, mvg in.

RIO ARRIBA—Berrenger et al's Hartman 1, ne 8-29n-7w, sd 825 ft. San Juan Pete Co.'s Gov't 1, se 14-30n-7w, sd 250 ft. Governador Oil Co.'s 1, se 12-29n-7w, carry 8¼-inch at 880 ft.

ROOSEVELT—Peterson et al, Good 1, ne 32-5s-30e, location.

SAN JUAN—Kutz Canon O&G Co.'s Day 1, se 20-28n-10w, dr 3210 ft. Rio Grande Dev. Co.'s 2, 9-29-11, stand 1515 ft. Continental Oil Co.'s Rattlesnake 24, 1-29n-19w, sdtr, td 4730 ft. San Juan Leaseholds, Bowman 3, ne 30-30-15, sd 2685 ft. Reserve Oil Co., Reserve 3, se 36-22n-14w, ur to 735 ft. R. C. Oswell et al, nw 34-30n-11w, dr 105 ft.

SAN MIGUEL—Pioneer O&G Co.'s Thunderbird 1, nw 14-15n-16e, wait 2340 ft. Starr Oil Co.'s Adams 1, ne 25-17-16e, dr 3700 ft. Cibola Pete Co.'s Crown 1, se 9-13n-14e, let cotnract to complete, td 750 ft. Hershfield Dev. Co.'s Cabra Springs 1, ne 12-12n-22e, prep to res 1415 ft. Con-O-Kul Oil's Cherryvale 1, ne 34-17n-21e, dr 625 ft.

SANTA FE—Jones, Owsley et al, Cantwell 1, 5-10n-9e, spd 25 ft.

TORRANCE—Wms et al's Staplin 1, ne 16-8n-10e, ready to res 1643 ft. J. B. Witt O&G Co., Kutchem 1, 12-7-7e, test prod 1230 ft.

VALENCIA—Acme Oil Co.'s N. M.-Ariz. Land Co.'s 1, 26-6-3, install rotary at 5000 ft.

WEST TEXAS

Company, Well and Location	Initial Production Bbls.	Depth
MENARD COUNTY—		
Voss & Bryan, Brandenberger 1	*	804

BORDEN COUNTY—Geo. Goodrum et al's Conrad 2, sd 780 ft.

BREWSTER COUNTY—Trans-Pecos O&G Co.'s Jones 1, elev 3073 ft, sd 2900 ft.

COKE COUNTY—Reid-Hitchins & Stanolind O&G Co.'s Duncan 1, elev 2151 ft, sp and sd.

CONCHO COUNTY—W. I. Betts & Daniels' Wood-Hendrick 1, sp and sd. A. W. Turner & Cromwell & Wesner's Brosig 1, elev 1699 ft, sd 1885 ft.

CRANE COUNTY—Cranfill Bros. Oil Co.-Gulf Prod. Co.'s J. B. Tubb 1, elev 2526 ft, salt 505-1400 ft, top brown lime 1410 ft, top white lime 2455 ft, pb from 5336 to 4503 ft, flowing by heads, sd for shot. H. H. Sides et al's B. P. Nolen 1, elev 2355 ft, dr 470 ft.

CULBERSON COUNTY—W. L. Kornrumpf et al's W. D. Garren 1, sd 1280 ft.

DAWSON COUNTY—R. A. Albaugh et al's Robinson 1, sp and sd.

ECTOR COUNTY—Galt-Brown Co. & Penn Oil Co.'s Cowden 1, elev 3047 ft, top anhydrite 1525 ft, salt 1535-2600 ft, top brown lime 3852 ft, sd 3860 ft.

EL PASO COUNTY—Tri-State Oil Co.'s Bobadella 1, fsh 615 ft.

FISHER COUNTY—Cranfill-Reynolds Co.'s Flanigan 2, elev 1810 ft, swabbed 85 bbls 39 deg. oil and little water from sandy lime at 3800 ft, running tubing. Stanolind O&G Co.'s Steele 2, elev 1873 ft, dr 2960 ft. The Texas Co.'s J. A. Jean 1, dr 1310 ft. Texas Unity Oil Co.'s First Nat'l Bank 1, elev 1848 ft, co 2830 ft.

GAINES COUNTY—Landreth Prod. Corp.'s Nick Alleu 1, dr 1240 ft. Texas Consolidated Oil Co. & T. P. Coal & Oil Co.'s Jones 1, elev 3636 ft, top anhydrite 2120 ft, top salt 2225 ft, sd 3435 ft.

GARZA COUNTY—Garza County Dev. Co. (Penny & Porsey's) Justice 1, elev 2266 ft, top salt 550 ft, top lime 1825 ft, dr 2720 ft.

HOWARD COUNTY—Conoco & Group One Oil Corp.'s E. E. Brindley 1, elev 2530 ft, top

salt 1170 ft, top lime 3077 ft, cem 6-inch cas 3084 ft.

HUDSPETH COUNTY—H. H. Henshaw et al's G. W. Love 1, machine. R. G. Patillo & Ed. Welch's K. S. Briggs 1, elev 4017 ft, dr 660 ft.

IRION COUNTY—Benedum-Trees et al's Sugg 1, rig. Perry Fox et al's H. Horney 1, dr 620 ft. Stanolind O&G Co.'s W. H. Williams 1, elev 2544 ft, dr 5650 ft. W. E. Newton et al's Horney 1, co 1580 ft. Straughn et al's Tankersley 1, elev 2306 ft, sd 1560 ft.

JONES COUNTY—J. C. Abers & L. D. Pruitt's L. L. Burton 1, dr 265 ft. Bonds-Trout et al's Williams 1, sd 2581 ft. Jake Croft-Conner & Tidal Oil Co.'s W. D. Swann 1, dr 1400 ft. Hardly Able Oil Co.'s Butler 1, top lime 2484 ft, sd 2610 ft. C. C. Julian O&R Co.'s Sears 1, lcn. Shaheen & Duffey's S. W. King 2, lcn. Tex-Mex Oil Co. & Eastland Oil Co.'s Brewer 1, dr 1150 ft. Union Oil Co.'s Hoyt 1, dr 1925 ft; S. W. King 1, machine. Andy Urban et al's Ed. Quinn 1, rig. Sam C. Yingling et al's Coates 1, elev 1908 ft, dr 2285 ft. Young & McNeil's L. R. Cade 1, dr 2175 ft.

LOVING COUNTY—The California Co.'s J. G. Allen 3, elev 2741 ft, top salt 815 ft, dr by tools 2858 ft; Allen 4, dr 2455 ft. Carl Cromwell & Atlantic Oil Prod. Co.'s Russell 2, rig. Erwin & Mohres Dev. Co.'s Lillie Thorpe 1, sd 810 ft. Folbre & Evans' D. P. Dean 1, dr 1450 ft. Grisham-Hunter Corp.'s Dean 1, elev 2655 ft, sd 1940 ft. Henshaw et al's Reagan 2, rig. Pete Hoffman et al's Ramsey 1, elev 2685 ft, top salt 760 ft, testing prod. 4245 ft; Ramsey 2, elev 2678 ft, top salt 775 ft, dr 2400 ft; Ramsey 3, dk. Lewis & Slagel Drlg. Co.'s Cartwright-Henderson 1, elev 2901 ft, salt 585-2907 ft, top Deleware lime 3086 ft, top sand 3127 ft, pb from 3182 to 3178 ft, testing prod. Lockhart & Co.'s I. J. Bell 1, elev 2705 ft, top salt 770 ft, dr 4040 ft. H. W. Martin et al's Wheat-Ramsey 2, dk. Fred H. Meyer et al's W. R. Lind 1, rig. Richmond Drlg. Co.'s Wheat-Ramsey 1, elev 2678 ft, top salt 765 ft, dr 3475 ft. W. A. Sudderth & James' Capitola Pool 1, dr 740 ft. F. S. Tennant et al's Roy Martin 1, sd 250 ft. West Texas Pet. Co.'s Allen 2, top salt 810 ft, sd 4110 ft.

MENARD COUNTY—C. O. Moore Oil Co.'s Callan 1-A, elev 2079 ft, sd 1085 ft. L. G. Price et al's Sorrells 1, elev 2279 ft, ur 2855 ft.

PECOS COUNTY—W. B. Hagan et al's Shearer 1, elev 2426 ft, top salt 1035 ft, dr 1565 ft. J. R. Miller et al's Bennett 1, sd 2285 ft. Penn Oil Co. et al's J. B. Alvis 1, elev 3493 ft, testing show oil 3590 ft. Lockhart & Honolulu Oil Co.'s R. D. Webb 1, elev 3054 ft, dr 550 ft. W. F. Whittaker & Calloway's Devlin 1, elev 2706 ft, sd 460 ft.

REEVES COUNTY — The California Co.'s Kloh 2, trace oil 2568-75 ft, cem cas 4042 ft, dr gray sand 4100 ft. Humble O&R Co.'s Balmorlea 1, dr 690 ft. Lee O. White et al's Hersheusen 1, dr 4495 ft.

RUNNELS COUNTY—Chas. Dutton et al's Dean 1, co 2335 ft.

SCHLEICHER COUNTY — Eastland Oil Co. Unit Plan's Tisdale 1, elev 2295 ft, dr 2475 ft. Teas & Gant's Allison 1, elev 2311 ft, dry and abn 5080 ft. J. D. Wesner et al's Ratcliff 1, elev 2408 ft, fsh tools 3705 ft.

SCURRY COUNTY — R. B. Pender O&G Co.'s Davis 1, elev 2208 ft, top salt 445 ft, sd 5115 ft. Seifert & Dibble's Blackman 1, top salt 720 ft, dr 3370 ft. Simons & Brock's F. Kruse 1, dk.

STERLING COUNTY—W. C. Beasley et al's Foster 1-A, elev 2518 ft, top salt 1410 ft, dr 2080 ft.

TAYLOR COUNTY — Adams-Ferguson & Hobbs' Lowe 3-A, dr 2085 ft. J. B. Jameson et al's Webb 1, elev 1905 ft, dr 6393 ft. Sanger et al's Abilene Water Works 1, elev 1759 ft, sd 2785 ft.

TERRELL COUNTY — Mid-Kansas O&G Co.'s Goode 1, sd as gasser, td 6120 ft. Leonard Jones et al's Peckenham 1, elev 2587 ft, sd 1245 ft.

UPTON COUNTY—Bennett Oil Co. & P. H. Williams' Shirk 1-A, sd 2727 ft. Duffey et al's McClintic 5, rig. Gulf Prod. Co.'s McElroy 94, elev 2714 ft, top salt 1145 ft, dr 2705 ft. Mintex Oil Co. & Harry Baldwin's Lane 1, elev 2743 ft, top salt 738 ft, sd 2130 ft.

WARD COUNTY—Alpine Oil & Dev. Co.'s Boogher 3, elev 2741 ft, top salt 810 ft, dr with show oil and gas 2195 ft. Beckley et al's Johnson 1, dr 1550 ft. Bell & Wier's Boogher 1, top salt 800 ft, dr 2200 ft; Boogher-Cummings 1, top salt 785 ft, dr by junk 1910 ft. Buster Black et al's Hall-Roberts 1, co 1010 ft. Alex Bradford et al's B. Carson 1, elev 2457 ft, top salt 820 ft, dr 1930 ft. Clyde Bradford et al's Hordage-Wilson 1, elev 2544 ft, top anhydrite 775 ft, top salt 1027 ft, running tubing to test, est 100 bbls oil and 1½ mil ft gas 2317-2475 ft. Bradford & Abell's E. R. Allen 1, machine. The California Co. & Atlantic's Gordon 1, elev 2523 ft, top salt 1000 ft, pb from 2599 to 2462 ft and flowed 75 bbl head while running tubing. Central Gas & Oil Co.'s Lee Monroe 1, dr 150 ft.

CENTRAL EAST TEXAS

Completions

CHEROKEE COUNTY—		
Fain-McGaha Oil Corp. & Sinclair O. & G. Co., W. A. Shaw 1	*	4017
Rowan-Nichols Oil Co.-Tidal Oil Co., Ousley 1	*	4225
LEON COUNTY—		
Sun Oil Co., Ella Grayson 1	*	3820
MORRIS COUNTY—		
Holmes-Nelson & Flynn, O'Conner 1	*	4015
RUSK COUNTY—		
Rusk County Oil Co., Robertson 1-A	*	3691

BOWIE COUNTY—Mayfield Oil Royalties & Devore's R. B. Cooper 1, W. M. Ward sur, elev 360 ft, top Nacatosh sand 931 ft, sd 1800 ft. Parkington & Jones et al's W. W. Whybark 1, J. H. Dyers sur, dk. W. A. Swift-G. W. Hindman & Tom Ball's Roy Merritt 1, Y. S. McKinney sur, trace oil and gas, sd 2315 ft. Lee J. Timberlake et al's J. M. Tidwell 2, L. M. Rice sur, elev 290 ft, dr 3000 ft.

CASS COUNTY—R. G. Baker et al's W. R. Kaver 1, John Lick sur, cem cas 180 ft. Geo. B. McCamey et al's R. E. Hall 1, H. Buckler sur, set sur cas. C. E. Murdock et al's G. W. Coody-First Nat'l Bank 1, Evans Watson sur, elev 401 ft. Pecan chalk 2522-2953 ft, top Austin chalk 3490 ft, co 3640 ft. Morris et al's Henderson 1, Bailey sur, sd 575 ft. Olds-Smith et al's Joe Anthony 1, J. C. Byers sur, dr 2060 ft. Pigg & Davis et al's Ray Bryan 1, Albert Latimer sur, top Nacatosh sand 1785 ft, sd 1970 ft. John C. Rogers et al's W. Q. Henderson 1, Wm. Davis sur, elev 354 ft, sd 955 ft; Lanier 1, K. A. Welborn sur, elev 366 ft, sd 2275 ft. Smith-Adkisson et al's Wilson 1, J. A. McFarland sur, dk.

CHEROKEE COUNTY—Ben Banner et al's A. S. Lacey et al's J. L. Hogg sur, dr 2315 ft. D. H. Byrd et al's Fariss 1, elev 215 ft, dr 3945 ft. Fain et al's Shaw 1, elev 410 ft, Pecan chalk 3217-3560 ft, dry and abn 4017 ft. Helen Clair Oil Co.'s M. B. Perkins 1, Thos. Sanford sur, rig. E. M. Jones et al's McLee 1, Jas. Knight sur, top Pecan chalk 3138 ft, dr 3355 ft. O. W. Killam et al's W. A. Newton 1, Thos. Quevedo sur, top Pecan chalk 3519 ft, dr 3600 ft. Rowan-Nichols & Tidal Oil Co.'s Ousley 1, dry and abn 4225 ft; W. T. Norman 1, Irby Large sur, rig. W. A. Stone et al's E. M. Decker 1, Geo. Ruddle League, top Pecan chalk 4265 ft, dr chalk 4535 ft. Sinclair O&G Co.'s Martin 1, Larkin Baker sur, Pecan chalk 2972-3322 ft, top Austin chalk 3806 ft, tested salt water in Woodbine sand 3961-67 ft. Walton Oil Co.'s E. Singleton 1, Tillman Waters sur, sd 2960 ft.

DELTA COUNTY — The Delta Co.'s M. Neatherly 2, J. B. Arnold sur, dr 3135 ft. D. S. Hoad et al's J. J. Baker 1, B. Carson sur, elev 437 ft, sd 1555 ft. Worthington & Stedham's W. H. Dejernett 1, E. Chick sur, elev 492 ft, sd 1925 ft.

FRANKLIN COUNTY — Harper-Byers Oil Co.'s A. J. Laws 1, D. G. Rogers sur, re-bldg dk, td 2855 ft. L. B. Pruitt & Geo. L. Pace's C. E. Cowan 1, Lipscomb sur, lcn.

FREESTONE COUNTY—Haley & Clark's M. C. Lanchester 1, D. Avant sur, lcn. Hicks et al's C. Lampier 1, D. Avant sur, E. L. Smith Oil Co.'s E. Jackson 1, Wiley Carter sur, dr 1100 ft.

HENDERSON COUNTY—Arcadia Ref. Co. & Shell Pet. Corp.'s Dean 1, Simon Boon sur, dr 210 ft. Westhyde Inv. Co.'s Thornhill 1, Jas. Spivey sur, lcn.

LAMAR COUNTY—K. O. Bundy et al's G. S. Legate 1, J. V. Cheney sur, rig. Everett & Allen's J. A. Guest 1, Luke Roberts sur, elev 525 ft, top Pecan chalk 2072 ft, show oil and gas 2683-85 ft, sd 2700 ft. Lamar County Dev. Co.'s T. W. Watson 1, I. L. Aud sur, dk. Puritan Oil Co.'s Geo. Parr 1, R. Russell sur, dk.

LEON COUNTY—Sun Oil Co.'s Ella Grayson 1, abn in Austin chalk 3462-3820 ft; Grayson 2, rig.

MORRIS COUNTY — Verne Dumas Pet. Co.'s Thos. Ball 1, A. S. Young sur, rig. Holmes et al's O.Conner 1, abn in shale 4015 ft.

NACOGDOCHES COUNTY—Adam & Williams' Stephens 1, Sanchez sur, ru. Big Indian Oil Co.'s Stewart 1, Black Jack, lcn. Texokla Corp.'s Driver 1, Torres sur, dr 2000 ft. Benedum's Conkrite 1, Chireno sur, dr 3700 ft. C. M. Bowie's Miller 1, Strode sur, set 8-in cas 675 ft. Bunte, Martin & Scroggins' Boatman 1, Boggs community, dr 2000 ft. J. F. Burke et al's Pattison 1, Santos sur, sd 4270 ft. Fain & McGaha's Pirtle 1, Edward sur, dk. Foreman & Weller's Stanley 1, Ybarbo sur, ru. Mathews Foreman's Mattauer 1, Chireno, dk. Upland Oil Co.'s Cooper 1, Windsor sur, ru. Twin Counties Oil Co.'s Reeves 1, Lloyd sur, ru. Ramey-Stegall's Cates 1, Melrose, lcn. Sequoia Oil Co.'s Boyd Estate 1, Oliver sur, ru. W. W. Wheeler's Parmley 1, Kirby sur, dr 3500 ft. E. L. Chapman-Tilford's Hunt 1, Bennett sur, dr 3600 ft. Joiner-Henson's Andy Legg 1, Durst sur, dr 800 ft. Paul Vitek's Hayter 1, Santos Coy sur, dr 1500 ft.

NAVARRO COUNTY—Young et al's Farmer 1, Finley sur, sd 1100 ft.

RAINS COUNTY — Berry-Hale et al's Owenby 1, J. Alexander sur, dr 1910 ft. Rains County Oil Corp. (R. A. Westbrook's) Wm. Cates 1, Calvin Gage sur, top Pecan chalk 2232 ft, trace oil and gas 3540-52 ft, ready to abn, dr 4215 ft.

RED RIVER COUNTY — Droppleman & Bundy's J. W. Cunningham 1, S. V. Chi sur, sd 2755 ft. C. M. Joiner-M. Harris-Echols & Peters' E. Howison 1, W. Humphries sur, elev 540 ft, sd 1800 ft. Everett & Allen's W. F. Bryan 1, P. Vaughn sur, dk. Pierson et al's J. R. Dellahunty 1, Moore sur, dr 380 ft. Johnson Pet. Co.'s S. C. Style 1, E. M. Dean sur, sd 2410 ft.

RUSK COUNTY—Adams & Williams' Stephens 1, M. Sanches sur, dk. A. J. Brown et al's Strong 1, John Hallam sur, dk. R. W. Giles-Frank Melat et al's Newt Orr 1, Wm. Tippett sur, sd 2000 ft. F. Griffith et al's F. J. Lowe 1, Wm. Williams sur, elev 366 ft, top Pecan chalk 2790 or 2820 to 3140 ft, top Austin chalk 3530 ft, dr 3685 ft. A. W. Jones Oil Co.'s J. Menefee 1, T. G. Walling sur, dk. J. S. Kimbrough et al's Weatherly 1, Robt. Martin sur, Pecan chalk 2784-3240 ft, fsh 3310 ft. Leonard Pet. Co.'s Sanger 1, J. P. Meredith sur, sp and sd. Pitts et al's Freeman 1, Jessie Watkins sur, dk. Rusk Co. Oil Co.'s Robertson 1-A, Pecan chalk 2593-3080 ft, Austin chalk 3500-3597 ft, dry and abn in Georgetown lime 3685-91 ft. Nat Sadler et al's Ed. Sparks 1, Abner Nail sur, re-cem 8¼ cas 1257 ft. Sinclair O&G Co.'s March 1, L. Williams sur, sd 1332 ft. R. C. Viehl et al's Burton 1, J. J. Ybarbo sur, dk. Westexas Oil & Royalty Corp. et al's E. C. King 1, J. C. Morrison sur, sp.

SMITH COUNTY — Big Indian Oil Co.'s Mills-Wolford 1, Jas. Jordan sur, rig; Holland 1, Thos. Allen sur, elev 509 ft, Pecan chalk 2775-3293 ft, Austin chalk 3720-3780 ft, coring 3850 ft. E. L. Chapman et al's Alexander 1, Pecan chalk 2700-2730 ft, dr shale 3255 ft. Concord Oil Co.'s Wolford 1, Jas. Jordan sur, rig. Cotton Belt Oil Co.'s Moore-Jackson 1, H. Muckelborough sur, dk. East Texas Ref. Co.'s Tyiska 1, R. Wilson sur, Pecan chalk 2820-3240 ft, Austin chalk 3677-3756 ft, testing oil sand 3837-45 ft. Verne Dumas Pet. Co.'s Cook 1, rig. Bailey Gaunce et al's Cook 1, Jas. Jordan sur, dr 350 ft. W. H. Hamilton et al's Gambrell 1, R. McAnulty sur, dr 2515 ft. Imperator Oil Corp.'s I. M. Green 1, T. Hogan sur, dr 1370 ft. C. M. Joiner et al's W. M. Wright 1, E. Van Sickle sur, top Pecan chalk 2360 ft, dr 3595 ft. Magnolia Pet.

Co.'s J. R. Wright 1, J. Vargus sur, Pecan chalk 2670-3041 ft, top Austin chalk 3525 ft, dr chalk 3565 ft; Wright 2, rig; Roy Loosier 1, J. Vargus sur, rig. C. R. Morrison et al's J. Roy 1, H. C. Cook sur, top Pecan chalk 2880 ft, dr 3070 ft. Owen-Sloan Oil Co.'s M. Starnes 1, Sam Epps sur, elev 357 ft, Pecan chalk 2604-2973 ft, top Austin chalk 3657 ft, dr 3700 ft. M. M. Rowan-Nichols Oil Co.'s Gibbons 1, J. Margarcia sur, dr 460 ft. Sinclair O&G Co.'s Jarvis 1-B, dr 2150 ft; Mayfield 2, Pecan chalk 2875-3208 ft, top Austin chalk 3701 ft, testing sand 3843-45 ft; G. Patterson 1, dr 300 ft; R. G. Wright 1, rig. T. B. Slick & J. G. Kugle, Jr., et al's Freeman 1, A. J. Lagrone sur, elev 498 ft, Pecan chalk 3080-3275 ft, fsh 3623 ft. Sun Oil Co.'s J. J. Denton 1, J. Vargus sur, top Pecan chalk 2704 ft, dr 2725 ft; J. D. Henson 1, dr 850 ft; A. V. Ritch 1, Sam Dexter sur, cem cas 219 ft. Valentine & Smith's Wm. Stone 1, D. Shaw sur, dr 415 ft. Witherspoon Oil Co.'s Wright 1, Pecan chalk 2714-3060 ft. Austin chalk 3544-3595 ft, cem cas oil sand 3666-72 ft.

UPSHUR COUNTY—Arcadia Ref. Co.'s P. S. Johnson 1, J. H. Mallory sur, dr 1460 ft. Bremen & Woods' Robertson 1, J. Stephenson sur, elev 390 ft, Pecan chalk2 640-3003 ft, top Austin chalk 3599 ft, sd 3600 ft. Joe Burnham et al's Lena Beck 1, H. W. Augustine sur, rig. Cockrell et al's C. A. Lee 1, W. L. Palmer sur, rig. Fleetborn Oil Corp. (was Steinberger & Schwab's) J. T. Edwards 1, D. Ferguson sur, dr 1100 ft. J. W. Green et al's Wooden 1, I. Williams sur, dk. Humble O&R Co.'s F. D. Futchell 1, A. Lumbrerra sur, rig. Magnolia Pet. Co.'s Howard Hampton 1, D. Ferguson sur, dk; Hampton 2, dk. McPhail-Smith & E. B. Perkins' Kay 1, T. G. Elliott sur, top Pecan chalk 2601 ft, dr 2700 ft. A. C. Trammell et al's M. A. Victory 1, E. A. Evans sur, lcn.

VAN ZANDT COUNTY—Clifford Oil Co.'s H. F. Haake 1, John Hawks sur, rig. C. M. Joiner et al's W. B. Meeks-Randall 1, A. Dutcher sur, rig. Texas Chief Oil & Roy. Corp.'s Foster 1-A, F. Montgomery sur, sd 2260 ft.

VAN FIELD—Humble O&R Co.'s Fowler 2, elev 484 ft, Pecan chalk 1743-1902 ft, Austin chalk 2138-2153 ft, cem cas on oil sand 2516-17 ft; Blake 12, sp. Pure Oil Co.'s W. H. Cook 3, base Austin chalk 3023 ft, dry and abn 3031 ft; R. C. Crim (37-ac) 3, top Austin chalk 2515 ft, tested dry in sand at 2941 ft, dd to 2979 ft and testing; A. D. Clark (3-ac) 2, dr 2160 ft; W. T. Jarman 8, dk; B. W. Russell 1, dr shale 2565 ft; L. A. Smith 2, rig; R. L. Wells 5, dr 2295 ft; Ella York (109-ac) 7, dk.

WOOD COUNTY — Deep Rock Oil Co.'s M. Smith 1, sp and sd. Paul Vitek & Penn's Rosa Vogel 1, Sarah English sur, rig. Wood County Dev. Co.'s M. M. Rick 1, Daniel Fuller sur, sd 1500 ft.

SOUTH TEXAS

ATASCOSA COUNTY—Geo. Keith, Jr.'s, Mrs. George M. Martin 1, 3 mi s Amphion, prep to spud.

BASTROP COUNTY—Schimmel and Batts' Williams 1, 2½ mi sw Yost field and 6 mi n Lytton Springs, bailed abt 1 gal oil per bailer from serpentine topped abt 1870 ft, total depth 1978 ft. Smith & Burns' Marburger 1, King and Millett sur, dr 100 ft.

BEE COUNTY—Grebin and Woods' Riggs 1, 6½ mi w Skidmore, 2 mi from Live Oak line, James Nowland sur, prep to spud. Alexander et al's McFall 1, 3 mi s Skidmore, sd 1206 ft. Gulf Coast Oil Co.'s (Moody-Seagraves Producing Co.) McKinney 2, Geo. Habbermacher sur, 3 mi n Pettus pool in new extension pool, dr 3710 ft, showed 375 pounds pressure on 5/16-inch choke in 15 minutes from sand 3684-98 ft, 425 lbs pressure in 11 minutes on 5/16-inch choke in sand 3715-27 ft, set csg 3730 ft wait on cemt. Davis et al's Geo. Ray 1 mile sw Pettus townsite, rigged up, prep to spud. J. S. Mauldin's Mauldin 1, Geo. Kerr sur, just s of Pettus townsite, waiting on csg, sand 3847-54 ft showed 125 lbs, little gasoline and mud, total depth 3862 ft. United Prod. Co.'s Ray 38, 900 ft e production, T. Hanson sur, showed sw in sand 3973-79 ft; Ray 37, Willis A. Moore sur, 1 mile e and slightly s Ray McKinney production, dr 1250 ft.

BEXAR COUNTY—Camp et al's Chavez 1, 10 mi s San Antonio near Elmendorf, dr 1000 ft. Penn Oil Co.'s Pollok 1, Cooksey pool, Rialls sur, spudded. Russell & Moore's A. O. Mills 3, Navarro sur, 10 miles se San Antonio on Somerset road, sd 938 ft. J. Morgan Russell's Price Story 1, A. Navarro sur, 10 miles se San Antonio on Somerset road, sd 1175 ft at tasl report. Uechert et al's Palfrey 1, 7 miles se San Antonio near Brooks field, sd 1805 ft. Weilbacher and Brock's Ernest 1, 2 mi n Somerset, J. Christopher sur, sd 925 ft.

BROOKS COUNTY—The Texas Co.'s Allen Land and Cattle Co. 1, in 711-acre San Antonita grant, dr 850 ft. Howeth et al's Singer 1, sur 436, 400 ft e Humble's Singer spudded.

CALDWELL COUNTY — J. E. Mills and Chapman's McMahon 1, 6 mi se Lockhart, Pinchback sur, dr 2350 ft. Rayor et al's Dunlop 2, near Luling, prep to ru. Ralph Ogden's O. S. Alexander 1, 10 mi se Lockhart, near Foster-Reiter's Alexander 1, topped chalk 2036 ft, dr.

DUVAL COUNTY — Humble Oil & Ref. Co.'s Kohler 50, Kohler pool, sur 164, fsh 6087 ft. O'Byrne et al's Weil Bros. 1, sur 568, 7 mi sw S. & O. pool, rep boiler, sd 1720 ft. S. J. Carpenter (Gus Pape's) Juan Benavides 1, sub of No. 1 Carpenter sub, Mesquite Grant, blk 38, sand 1665-69 ft, showed oil, to set csg. Magnolia Pet. Co.'s Wilson 3, sur 134, S&O pool, completed 300 barrels, casing set 2349 ft, total depth 2394 ft. The Texas Co.'s Bishop Duval Land Co. 1, sur 135, S&O pool, completed 300 barrels, csg set 2349 ft, total depth 2384 ft. Magnolia Pet. Co.'s W. Benavides 1, sur 172, Cole district, coring 1465 ft. Coffee et al's Jose Garza 1, sur 49, Garza Irrigation Co., sd 900 ft.

FRIO COUNTY — Wray and Dunbar's Barnes 1, 1 mile from Big Foot, sec 123, abn 3708 ft.

GOLIAD COUNTY — Gibson Oil Co. & Benedum and Trees' Parks 1 (wo) 5 mi ne Goliad, test sw 4381 ft, showed oil 4520-41 ft, but whipstocked back and milled out to test shallower sand, may whipstock back agaain and mill out; Parks 2, prep to make lcn.

GUADALUPE COUNTY—Harry Bruner's Jim Sherrill 1, Geo. Allen League near Staples, dr 500 ft. W. J. Walter's Anton Zobrowoski 1, on 227 ac. tract, 8 mi se Seguin, moving on. J. E. Linne 1, 8 mi sw Seguin, 5 mi s Marion, C. Cortario sur, dk.

JIM HOGG COUNTY — DeWitt and DeWitt's Teofilo Gomez 1, sur 12, dr 200 ft. Magnolia Pet. Co.'s Y. V. Cuellar 1, blk 92, W. A. Dannelly sub, sur 575, Share 2, El Peyote Grant, dr 4004 ft. P. & M. Oil Co. (Peterman and Minahan) Palacios 1, 3 miles se Randado field, blk 12, sur 231, re-dr 1360 ft.

JIM WELLS COUNTY—Carsil O&G Co.'s McGill 2, 900 ft due n McGill 1, Wm. D. Baldwin sur, 3 mi n Armagosa, sd 3004 ft for orders.

KERR COUNTY—Herbert Oil Co.'s J. D. Witt 1, W. H. Hamilton sur, sec 1923, dk. Col. B. M. Hatridge's (Neely and Halbert) W. R. Rischworth 1, sec 1459, 2 mi se Center Point, sd 117 ft, to re-dr shortly; Westland 1, blk 23, Westland Addn, Kerrville, td 460 ft, to re-dr. Evans and Sprinkle's Jeff Love 2, sw cor sec 1593, one-half mi se discovery well, ru. Evans and Gant's Seiker and Mears 1, sw cor sec 1605, CCSD & RGNR Ry. sur, 2 mi ne Love test, dr 1900 ft. Mims et al (Chester Martin) J. E. Young 1, nw cor sec 28, still waiting to spud.

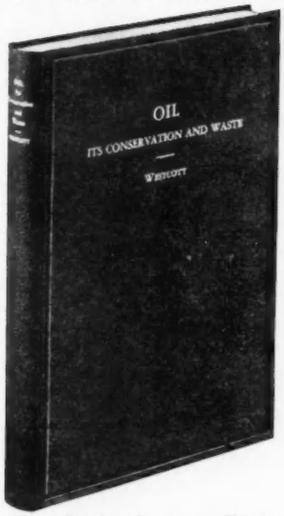
KLEBERG COUNTY—Barbee & Hunter's Finnegan 1, nw cor John D. Finnegan tract, 7 mi s Kingsville, spudded.

LA SALLE COUNTY — Fred W. Volz's Coleman 1, blk 15, sur 514, sd 40 ft.

LIVE OAK COUNTY — Burke Greis Oil Co.'s Geo. West 1, 10 mi w Geo. West Townsite, James Vaughan sur No. 57, dr 480 ft. Houston Oil Co.'s Cartwright 23, ne Cartwright 11, Sandman sur, Mt. Lucas district, set 595 ft 13-inch csg, wait on cement.

McMULLEN COUNTY—Camp and Stanolind O&G Co.'s Murphy 1, 1½ mi ne Massey 1, dr water well.

NUECES COUNTY — Houston Oil Co.'s Ollie Purl 1-B, blk 7, R. Peters sur No. 2, Agua Dulce pool, drilled to 6010 ft, plugged back to 4849 ft, casing set 4835 ft, completed 40,000,000 cu ft wet gasser; Harrell 2, offset to Gulf Coast Oil Co.'s Harrel 1, Saxet pool,



Oil, Its Conservation and Waste

By **JAMES H. WESTCOTT**

FOURTH EDITION, OCT., 1930

This new edition contains much new material. The tables have been brought down to date and 53 new ones added.

This book is of particular value to those who desire a broad general knowledge of the oil industry and its progress. It should be an incentive to the workers in the industry for the solution of the problems confronting it.

The Statist, London, England: "In the fourth edition of this useful work, Mr. Westcott expresses belief that a new era of reasonable prosperity for oil producers is in the making."

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sd for repairs 2426 ft. Gulf Coast Oil Co.'s Harrel 1, ¾ mi n production, GC&SF sur No. 311, blk 32, Saxet field, dr 3700 ft, showed 750 lbs in 1½ min on 3/16-inch choke from sand 3154-68 ft, sand 3761-73 ft, showed 175 ft oil and 750 ft mud. L. L. Smith, Inc.'s, Hunter 1, e of production, Rincon del Osa Grant, show oil and gas in sand 3185 ft. Saxet Oil Co.'s Dunn 8, 1000 ft n and 3 of Dunn 7, Saxet field, showed oil 4063-79 ft, sw at 4091 ft, dr 4120 ft in sand and shale.

REAL COUNTY — Gant and Kilgore and Eastland Oil Co.'s Dan Auld 1, sec 23, CCSD &RGNR Ry sur, 3 mi sw Love producer, re-dr 3310 ft, set 6-inch csg, had fsh job when csg parted abt 1700 ft. Evans and Sprinkle's Haby 1, sec 175, AB&M sur, 7 mi sw Love 1, dr 1895 ft.

REFUGIO COUNTY—Humble O&R Co.'s D. M. O'Conner 1, near Victoria line, moving on.

SAN PATRICIO COUNTY—Saxet Oil Co.'s White Point Dev. Co. 4, csg set 4942 ft, total depth 4953 ft, dr in.

STARR COUNTY — B. B. Tipps' Frank Doyne 1, lower tract No. 4, Porcion 81, sd 332 ft. Sacremento O&G Co.'s Seabury et al 1, sd 411 ft. Los Olmos Oil Co.'s Kelsey Bass 4, blk 7, Porcion 75-76-77, Jurisdiction of Carmargo, dr 360 ft.

VICTORIA COUNTY—Houston Oil Co.'s Conrad 1, Beck Salt Dome, n Victoria, T&NO sur, ru. Simpson-Fell Oil Co. & Westheimer et al's Levi 1, 10 mi s Victoria, 15 mi ne McFadden field, dr 3375 ft. T. B. Slick Estate's McFadden 1, ne Lion-McFadden producers, dr 3440 ft. United Production Co.'s McFadden 4-A, s part of county, near McFadden gassers, ru.

WEBB COUNTY — Eugene Garner, Jr.'s, Billings 1, nw ¼ of ne¼ of sur 71, lcn. Cole Pet. Co.'s (Carson) Benavides 2-4, sur 1601, dr 1760 ft.

ZAPATA COUNTY — Benson Oil Co.'s S Vela 1, blk 12, sur 259, dr 1928 ft. E. C. Brogan's Montemayor 1, blk 11, sur 64, coring 1850 ft. Bill Henry et al's Gopher Trust Estate 1, blk 10, sur 4, Fullerton Sub of Share 8, Borrego Grant, dr 1400 ft. O. W. Killam's A. Bustamante 7, blk 7, share 5, Fansler Partition, Comitas Grant, completed 40 bbls 1246-53 ft; Bustamante 8, blk 7, share 5, Fansler Partition, Comitas Grant, ru; Cuellar 40-C, sur 278, dk. National Oil Co.'s Luther et al 1, blk 97, Da Pron sub, ne ½ Porcion 6, sd 590 ft. Neilson and Coursey's Luther et al 1, blk 11, sec 5, Fullerton sub, Borrego Grant, abn 1320 ft. Penny Prod. Co.'s Juan V. Cuellar 1, blk 1, share 2, Pappas sub, Porcion 33 and 34, reaming to 2035 ft. Talmadge and Mackenzie's Trevino 1, sur 4, blk 6, Marts and Beavans sub, Porcion 2, sd 519 ft. T. H. Ward's Uribe 1, blk 8, Uribe Partition of Juan V. Borrego Grant, to spud shortly. Allied Gas and Oil Co. and Allen and Morris's E. Gutierrez 12, share 4, Fansler Partition, Comitas Grant, coring 1430 ft.

TEXAS GULF COAST

ANGELINA COUNTY—Douglas et al's Wm. Cameron Lbr. Co. 1, 7 mi ne Lufkin, V. Micheli grant, lcn. R. D. Moore's Abney Estate 1, Tuinalty sur, sd 1350 ft. Pollock Oil Co.'s Sessions 1, Garza sur, sd 3200 ft.

AUSTIN COUNTY—O'Hara et al's Schrader 1, Hacienda sur, dr 3850 ft shale. Empire's Kunze 1, San Felipe, dr 7010 ft shale. Parmeson & Cafferkey's Scholeckye 1, Fitzgibbons sur, dr 1030 ft shale. Humble's Remmert 1, Raccoon Bend, lcn.

BRAZORIA COUNTY—United Oil Synd.'s Speer 1, 3 mi n Danbury, set 48-in screen at 1865 ft, bailing. D. C. Wellock's Hammon 1, Damon Mound, dr 200 ft clay. The Texas Co.'s Belcher 1, 1500 ft se Ewing 1, Manvel, dr 100 ft clay. Rycade and Amerada's Seaburn 2, Stratton Ridge, abn 7624 ft.

BURLESON COUNTY — Doran et al's Sparks 1, fsh 1300 ft. Mid South Oil Co.'s Duckworth 1, sd 2640 ft. Reynolds Oil Co.'s Harris 1, sd 400 ft.

CALHOUN COUNTY — The Texas Co.'s Smith 1, Chocolate Creek, dr 5140 ft.

CHAMBERS COUNTY—Pure's Mayes 11, Lost Lake, dr 3650 ft gbo.

COLORADO COUNTY—United N. & S. Dev. Co.'s Lockwood 1, dr 4200 ft shale.

FAYETTE COUNTY—Elam & Reynolds' Florence 1, dr 1320 ft shale.

FORT BEND COUNTY—Cullen & West's Lockwood 1, 3 mi s Thompson, dr 3000 ft sand. Telschow, Cady et al's Blakely 1, Blue Ridge, dr 2320 ft gumbo. Gulf's Moore 29, Moores Field, dr 3680 ft.

GALVESTON COUNTY—Yount-Lee's Cade 20, ru; Cade 21, dr 3200 ft shale and lime.

HARRIS COUNTY—Cypress Oil & Dev. Co.'s Fritz 1, Duckworth sur, rm 450 ft. Baldwin et al's Fritz 1, 3 mi n Cypress, lcn. Humble's Minnetex 5, ru; Minnetex 6, dr 4150 ft shale.

HOUSTON COUNTY—A. E. Winfree's Hodges 1, Russell sur, dr 2 00 ft.

JEFFERSON COUNTY—Humble's McFaddin 1, 8 mi e Big Hill, dr 7610 ft shale. The Texas Co.'s Pinkin 1, Big Hill, stdg 5900 ft.

LAVACA COUNTY—F. P. Zoch's DeBard 1, lcn.

LEE COUNTY—Wheeler et al's Stoltz-Frede 1, 3 mi nw Lexington, sd 1980 ft. Burt et al's Sanders 1, sd 3120 ft.

LIBERTY COUNTY — Cranfill-Reynolds' Davis 7, Esperson, dr 4660 ft lime. Gulf's Boyt 12, Hankamer, comp for 1500 bbls 3810 ft. Kirby 1-C, abn 6158 ft. M. L. Gray's Schindler 1, North Dayton, dr 1130 ft rock. Harrison Oil Co.'s Jones 2, dr 1400 ft sand.

MATAGORDA COUNTY — Cockburn et al's Hawkins 3, Shepherds Mott, dr 950 ft shale. Empire's Boker 1, Citrus Grove, dr 6200 ft sand.

MILAM COUNTY—Dil-Tex Oil Corp.'s Dulbeck 1, Rodriguez sur, lcn. W. H. Elliott's Davis 1, sd 2150 ft. Kisker et al's Ward 1, sd 3080 ft. J. E. McKee's Littleton 1, sd 650 ft. Peggi Bros.' Reed 1, sd 2180 ft chalk. Red Bank Oil Co.'s Foster 1, 12 mi e Cameron, dk. Rhoenbotham Oil Co.'s Johnson 1, fsh 2100 ft.

MONTGOMERY COUNTY—Lake Creek Oil Co.'s Hunt 1, bldg larger dk and ru. Wilhite & Hornbeck's Lieberman 1, 2½ mi w Conroe, dr 3900 ft.

ORANGE COUNTY—Crews Oil Co.'s Mansfield 1, Stephenson sur, sd 1412 ft.

POLK COUNTY—Freeman et al's Freeman 2, 4 mi se Leggett, stdg 2980 ft.

SAN AUGUSTINE COUNTY — Lambeau Thompson Dr. Co.'s Whitton 1, Welding sur, sd 2900 ft. Henry Maulding's Frost Lbr. Co. 1, Fountain sur, dr 1180 ft rock. H. H. Gracy's Morrison 1, English sur, ru. Chapparel Oil Co.'s Holt 2, Moore sur, sd 3100 ft. E. L. Chapman's Pickering Lbr. Co. 1, Henry sur, dr 2700 ft. J. M. Bradley's Ashberry 1, Mitchell sur, dr 475 ft.

SAN JACINTO COUNTY—E. P. Edwards et al's Bennett 1, Cold Springs, sd 50 ft.

TYLER COUNTY—King Oil Co.'s Caswell 1, sd 1250 ft. Allied Pet. Co.'s Wilson 3, sd 4870 ft. L. H. Wentz's Long Bell Lbr. Co. 1, Seale sur, abn 4205 ft.

WASHINGTON COUNTY — Penn Tex Oil Co.'s Kamas 2, Williams sur, sd 2800 ft. Sun's Marcus 3, Sperry sur, lcn. Yegua Oil Co.'s Graves 1, Clampit sur, dr 1350 ft.

WHARTON COUNTY — H. H. Givan's Hudgins 3, dr 1890 ft shale. Pool & Chappel's Lee 1, abn 757 ft. Rose Texas Oil Co.'s Floyd 1, Austin sur, lcn.

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HARRISON COUNTY—
Geo. L. Pace, Barker 1, Victor Pedraso sur. ..... * 4018

HARRISON COUNTY — Hunter et al's Daugherty 2, W. B. Burris sur, 12½ cas 245 ft, ta in Georgetown 3563 ft. O. H. Parkening's T. J. Taylor 1, Walter H. Payne sur, elev 200 ft, 12½ cas 215 ft, dr 1025 ft. T. J. Taylor 2, J. C. Hawley sur, lcn abn. Rowan & Nichols' Bussey 1, E. A. Merchant sur, 100

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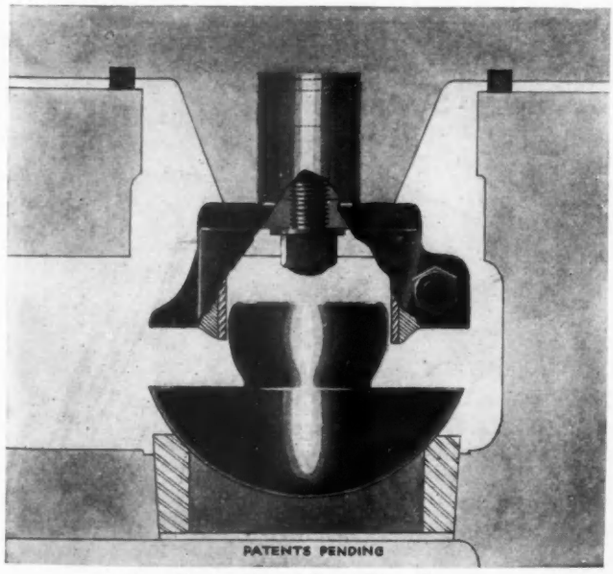

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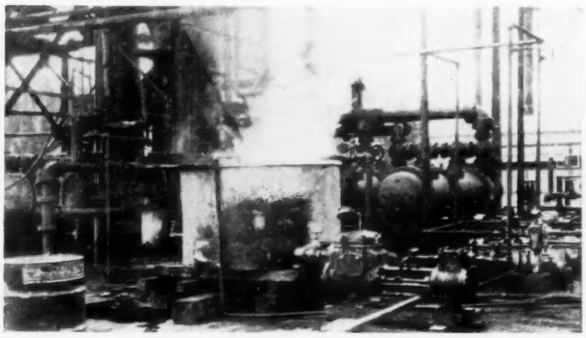

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PG 2310 ft, dr 2500 ft. Crump & Hannagan's Dunn 1, Battie Humphreys sur, elev 330 ft, ta 4006 ft. Siegel Bros. et al's T. J. Taylor 1, F. O'Neal sur, lcn. Geo. L. Pace's Barker 1, Victor Pedraso sur, elev 349 ft, top PG 2207 ft, dry abn, td 4018 ft. Banner et al's Lowrey 1, W. O. Stanfield sur, top Nacatosh 1700 ft, top PG 2136 ft, cored Blossom sand showing oil 2797-2805 ft, cemtd 6-inch cas 2797 ft, arr dr in, td 2805 ft. Ryan Cons. Pet. Corp.'s H. H. Key 1, E. Carroll sur, rig (Trinity test planned). Everts Drilling Co.'s Sypert 1, Richard Hooper sur, sp dr in shale 1600 ft. J. M. Gholson's Bivins 1, T. K. Pearson sur, dk. Olford et al's Bolding 1, W. O. Stanfield sur, dr shale and bldrs 1100 ft. William Atkinson's Hays 1, J. C Chapin sur, 10-inch 195 ft, top Blossom 2430 ft, tested dry through ds 2430-70 ft, arr deepen. Thomas & Kinsey's J. R. Watson 1, Thomas Iden sur, dk.

MARION COUNTY—Trammell et's Hussey 1, Chas. Lockhart sur, elev 282 ft, top chalk 1771 ft, 8¼ cas 1514 ft, ta junk in hole, td 1878 ft. Rondeau & Hindman's McGaugherty 1, W. J. Wills sur, co to deepen, td 2450 ft. Hindman et al's Lindsay 1, Alex Albright sur, sd 400 ft. J. W. Hamilton's Wood 1, Alex Albright sur, sd 400 ft. Gist, Claunch et al's Laun 1, Henry Fugham sur, rig. Sheldon et al's Brown 1, R. B. Fowler sur, sp.

PANOLA COUNTY — Bell et al's Burnett Lbr. Co. 1, S. B. Hendrick sur, elev 186 ft, sd 3335 ft. Dillon & Bradhom's Baldwin 1, Hampton West sur, 12½ cas 43 ft, claim top PG 1500 ft, sd 1555 ft. United Prod. Co.'s Steele 17, B. C. Jordan sur, lcn (Trinity test). Werner 10, B. C. Jordan sur, sd repr rig 2355 ft (Trinity test). Neft et al's Brumble 6, B. C. Jordan sur, lcn abn for Trinity test. Southwestern O&G Co.'s Vinson 1, C. T. Anderson sur, dr 2650 ft (Trinity test, old well dr deeper). Daisy O&G Co.'s Rucks Hrs. 1, Jno. Palmer sur, 12½ cas 780 ft, top chalk 1352 ft, 8¼ cas 1900 ft, dr 3220 ft. Texas Co.'s Brumble 12, Jno. Womack sur, 10-inch 1200 ft, 6⅝ cas 4450 ft, dr shale 4632 ft. Everett Prod. Co.'s McDaniel 4, Alamson Barr sur, wo 6⅝ cas, claim 30 ft bro sand showing gas, td 1315 ft. Moses & Wallace's C. L. Daniels 1, Isabel Hanks sur, dk. Hopper et al's Cameron 1, W. A. LaGrane sur, lcn. Davidson et al's Latham 1, G. F. Penn sur, sp dr 50 ft. Ark. La. P. L. Co.'s Werner 14, B. C. Jordan sur, bldg dk (Trinity test).

SHELBY COUNTY—Sloane Prosp. Co.'s T. B. Sandford 1, M. M. Vann sur, 12-inch cas 300 ft, dr shale and bldrs 1100 ft; Windham 1, A. H. English sur, elev 307 ft, 10-inch 180 ft, cored Blossom sand showing oil 2652-69 ft, cemtd 6⅝ cas 2669 ft, bailed down 1700 ft showed sw, arr pull liner and deepen, td 2680 ft Chapparral Oil Co.'s Holt 2, Matthew Moore sur, sd 3111 ft. E. L. Chapman's Pickering Lbr. Co. 1, C. F. Henry sur, 10-inch 240 ft, dr lime 3180 ft. Maulding et al's Frost Lbr. Ind. 1, A. B. Fountain sur, 12½-inch cas 500 ft, sd changing rigs, td 1610 ft (corrected depth). H. H. Gracey's J. A. Morrison 1, Wm. English sur, dr 400 ft. I. M. Bradley et al's J. J. Asberry 1, G. W. Mitchell sur, dr 1810 ft. T. A. Martin's J. A. Bush 1, Alfred Lindsay sur, dk. Joiner et al's Foster ½ Billingsley 1, J Bowlin sur, dk. Schultz et al's Hughes 1, J. Clay sur, sp dr 50 ft.

LOUISIANA GULF COAST

ASCENSION PARISH—Triumph Oil Co.'s Lacey 2, stdg 4220 ft.

AVOYELLES PARISH — M. L. Vincent's Morrow 1, sd 4220 ft.

BEAUREGARD PARISH — Beauregard G. & O. Co.'s Cochran 1, Merryville, dr 2290 ft gumbo.

CALCASIEU PARISH — Wilfred Lahay's Jardell 1, 2 mi e Vinton, sd 3250 ft. Vacuum's State 7, Lockport, o.s. 6568 ft; Miller 12, dr 4630 ft shale; Miller 32, lcn; Yount-Lee's Miller 2, dr 5440 ft shale and lime. J. O. Davis' Ind. Lbr. Co. 1, 8 mi n Starks, sd 6568 ft. Gulf's Lutcher-Moore 27, Starks o.s. 1228 ft. Union Sulphur Co.'s Fee 765, Sulphur, dr 4455 ft salt; Fee 767, lcn.

CAMERON PARISH — Freeport Sulphur Co.'s Gulf Land Co. 7, Black Bayou lcn. The Texas Co.'s Calcasieu Lake State 7, lcn. Vacuum's Cameron Meadows 2, Cameron Meadows, dr 3575 ft sand and shale. Federal Pet. Co.'s Hebert 2, Hackberry, abn 5600 ft. R. E. Seiss' Vincent 2, prep to test sand 1995 ft. Magnolia Pet. Co.'s Sweet Lake Land Co. 2, Sweet Lake, fire burned part of equipment, stdg 4874 ft. Pure's Yount-Lee 10, prep to dr, plug 7385 ft.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Peigneur 11, Jefferson Island, stdg 865 ft; Lake Peigneur 12, lcn.

IBERVILLE PARISH—Standard of La.'s Gay 1, Bayou Choctau, dr 4169 ft rock; L. Baist 1, Bayou Blue, abn 3855 ft; Schwing 3, sd 2990 ft; Wilbert 9, Bayou des Glaise, coring lime rock 3380 ft; Case 2, lcn t.a.

JEFFERSON DAVIS PARISH — A. V. Peters' Smith 1, Welsh, prep to pump 1160 ft.

ST. MARTIN PARISH—Humble's State 4, Bayou Boullon, abn 5248 ft sticky shale.

ST. TAMMANY PARISH—Washington and St. Tammany Dr. Co.'s Coussack 2, t.a. 2030 ft.

TANGIAPAHOE PARISH—Joan Dev. Co.'s Lake Superior Oil Co. 1, ta. 3015 ft.

TERREBONNE PARISH—The Texas Co.'s Bay St. Elaine 1, stdg 4750 ft; Caillou Island 6, dr 4480 ft shale and lime; Dog Lake 4, dr 3360 ft sand; Four Isle 5, dr 600 ft lime; Lake Barre 6, dr 2950 ft shale; Lake Barre 10, lcn; Lake Barre 11, dr pil; Lake Barre 12, lcn; Lake Barre 13, set 12½-in cas 1060 ft; Lake Barre 14, lcn.

VERMILION PARISH — Pure's Alliance Trust Co. 1, prep to set 13 3/8-in cas 1240 ft.

WEST FELICIAN PARISH — Putnam Synd's Como Plantation 2, dr 1480 ft gumbo.

NORTH LOUISIANA

Company, Well and Location	Initial Production Bbls.	Depth
SABINE PARISH (Zwolle)—		
Nat. Gas Prod. Co., Sabine 1, 11-7-12	*	2463
Texas Co., Stille 3, 33-8-11	1000	2318
Ohio Oil Co., Bowman-Hicks 8, 2-7-12	100	2480

BIENVILLE PARISH — Ark. La. P. L. Co.'s Gayoso Co. Inc., 1, nw sw 14-16-10, rig.

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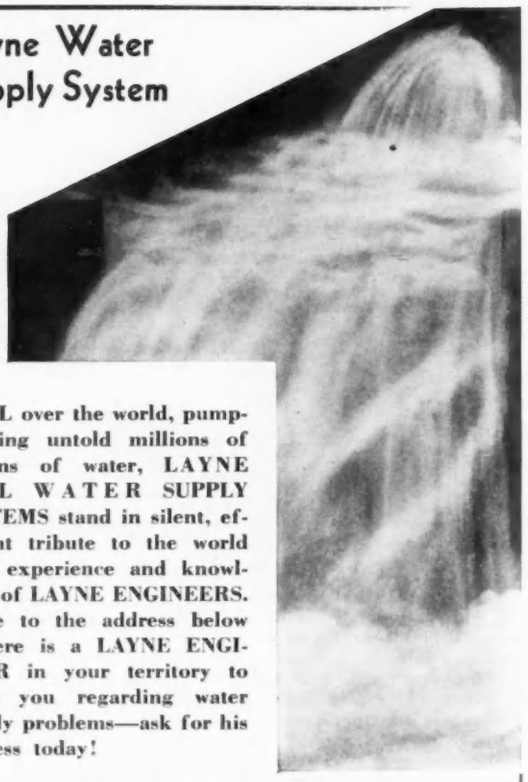

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Jamestown Synd.'s Lawhon 1, sw ne 15-16-8w, show gas in Tokio sandy shale, 6-inch cas 2845 ft, fsh cas, td 2854 ft.

BOSSIER PARISH — Andrews & Davlin's Nattin 1, 15-22-14, sd 2950 ft. Rambaugh et al's Allison 1, 10-19-13, sd 1100 ft. Flint River Oil Co.'s DeMoss 1, se nw 22-22-13, 12½ cas 236 ft, dr 1850 ft. Hankins et al's Newell 1, ne ne 12-19-11, coring 650 ft (Upper Trinity test). H. I. Morgan's Kendricks A-13, nw se 22-19-11, 10-inch 135 ft, blew out at 1737 ft, now blowing wild. D. L. Perkins et al's Ardis 1, ne sw 13-15-11, mov in rig; Glover 1, (formerly Glassell 1), se ne 23-15-11, lcn.

CADDO PARISH—Pelican Nat. Gas Co.'s Cooper 1, 29-18-14, 15½ cas 200 ft, 12½ cas 1129 ft, coring sandy shale 2680 ft (to be 5500 ft test). United Pub Serv. Co.'s Smith 1, nw ne 33-23-16, rig (5500 ft test).

CATAHOULA PARISH—National Drilling Co.'s Marsh McMillian 1, 26-9-6e, 6⅝ cas 2796 ft, tested sw, sd 3097 ft.

CALDWELL PARISH—Hudson et al's Burton 1, 36-12-2e, coring sand 2956 ft. Carter Bell et al's Taylor 1, ne se 17-14-4e, rig.

CLAIBORNE PARISH — Leue Oil Co.'s Kinder 1, sw se 2-21-7w, lcn.

CONCORDIA PARISH—United Gas Pub. Serv. Co.'s Hughes 1, 49-8n-10e, 12½ cas 198 ft, dr 1119 ft.

DE SOTO PARISH — Rellitt O&G Co.'s Cannon Hrs. 1, nw ne 12-11-16, lcn. W. H. Weichert's Smith 1, 31-14-15, top gas sand 1653 ft, top chalk 1901 ft, sd 2350 ft. Neff et al's Ramsey 1, 33-13-16, 12½ cas 80 ft, bit lost in hole, sd 3000 ft. E. T. Oakes' Johnson 1, 30-13-15, dr 1100 ft.

NATCHITOCHES PARISH—C. M. Talley et al's Talley 1, 29-11-10, tested dry, show oil in bro sand and shale 1256-69 ft, dry 1380 ft, sd wo. W. M. Coates et al's Collins 1, sw nw ne 28-9-10, base Midway chalk 2612 ft, base hd lime 4039 ft, tested 15 joints mud and sw 4020-91 ft, ta 4091 ft. J. W. Cooper et al's Cooper 1, sd 3156 ft; Cooper 2-A, 35-11-10, top chalk 1400 ft, sd 1515 ft.

RED RIVER PARISH — Mack Jourden Co.'s Lockett 1, 32-13-10, sp dr 500 ft.

SABINE PARISH—J. C. Walton's Sabine 1, ne nw 11-7-12, 6⅝ cas 2119 ft, sd 2376 ft. Lacey Prod. Co.'s Cooper 1, 30-8-11, top chalk 2306 ft, 6⅝ cas 2270 ft, wosr, td 2620 ft. Triangle Pet. Co.'s Sabine 2, 36-8-12, sp 10-inch 85 ft, dr 1950 ft. J. J. Kean's Belton 1, se sw ne 31-9-13, sd 1500 ft. Jno. Woodley's Sabine 1, ne se 12-8-12, 10-inch 103 ft, 6⅝ cas 2310 ft, top marl 2312 ft, base marl, 2392 ft, bailed dry 2403 ft, bailed dry 2716 ft, sd wo. H. W. Perritt's Bowman-Hicks 4, se ne 2-7-12, dk; Boring 1, ne nw 11-7-12, 10-inch 85 ft, 6-inch 2238 ft, hfo wosr, td 2602 ft. A. H. Thames' Edwards Est. 1, ne se 8-8-13, 10-inch 100 ft, sd for water 1200 ft. R. L. Gay, Tr.'s, Long-Bell A-1, ne nw 10-8-13, 12½ cas 105 ft, top marl 1897 ft, base marl 1950 ft, dr chalk 2418 ft. Jordan Drilling Co.'s La. Long Leaf 2, sw se 3-7-11, sp 10-inch 103 ft, dr 1400 ft; Gautier et al's Meshell 1, se nw 30-8-12, dr 2100 ft. Ohio Oil Co.'s Bowman-Hicks 8, nw ne 2-7-12, 10-inch 199 ft, 6⅝ cas 2200 ft, flowing 100 bbls daily, td 2480 ft; Bowman-Hicks 9, nw se 35-8-12, lcn; Bowman-Hicks 10, sw ne 35-8-12, lcn; Bowman-Hicks 11, sw se 2-7-12, lcn. Durham Oil Co.'s Polly 1, sw ne 18-8-12, 10-inch 105 ft, 8¼ cas 2087 ft, base chalk 2595 ft, sd 2722 ft. Sabine Royalties Co., Inc.'s, Bill Hill 1, nw ne ne 5-7-11, 10-inch 105 ft, top marl 2217 ft, 6-inch cas 2230 ft, 1900 ft oil in hole, wosr, td 2506 ft; Skinner 1, se sw ne 5-8-11, sd for water 2138 ft. Diffie & Barrett's Lites 1, 34-8-11, 10-inch 105 ft, sd. Nat. Gas Prod. Co.'s Sabine 1, se nw 11-7-12, 10-inch 40 ft, 6-inch 2302 ft, sw abn, td 2463 ft; Sabine 3, 1-7-12, 6-inch 2222 ft, dr 2290 ft. Hawkins et al's Moran 1, se ne 1-7-11, 10-inch 100 ft, 6-inch 2428 ft, tested dry show oil and gas 2493 ft, sd 2540 ft. Lyons & Neely's Byrd 2, 1-7-11, rig. Texas Co.'s Stille 3, nw sw 33-8-11, 6⅝ cas 2230 ft, flowing 1000 bbls oil day through 7/32-inch choke, td 2318 ft in chalk. De Latin 1, nw se 3-7-11, dk. W. M. Coates' R. L. Gay 2, 1-7-12, sp 10-inch 101 ft, dr 600 ft; McNeely 1, 14-7-11, lcn; Williams 1, 23-7-11, dk. Pelican Nat. Gas Co.'s La. Long Leaf 9, sw se 3-7-11, 10-inch 85 ft, cemtd 6-in cas 2363 ft. Stovall Drilling Co.'s Nulton 1, 1-7-13, sp 10-inch 100 ft, dr 400 ft. Sabine Prod. Co.'s Pearce 2, se nw 10-7-11, sp 10-inch

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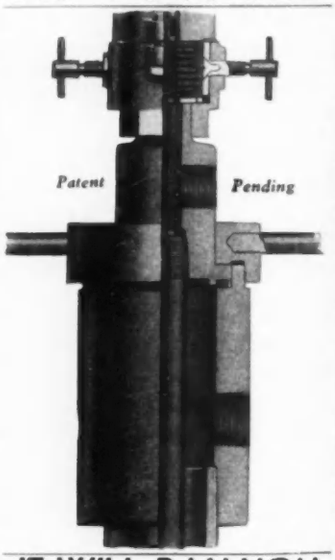

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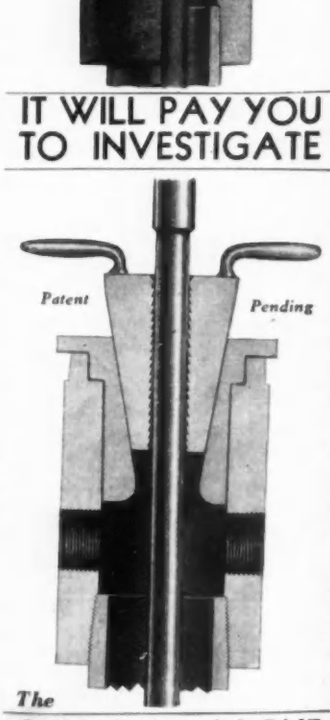

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TENSAS PARISH—A. R. Willis' Curry 1, 39-11-12, fsh ds 3475 ft.

WEBSTER PARISH—D. M. Coyle's Frazier 1, ne se 27-23-11, dk. Cassidy & Davis' Nickerson 1, ne sw 29-23-10, sd 160 ft. Red Hawk Oil Co.'s Matthews 1, se nw 11-23-9, top chalk 2480 ft, 6-inch 2764 ft, bro formation 2782-97 ft, showed oil bailed down 2400 ft, small show oil, cas collapsed, sd wo, td 2797 ft.

WEST CARROLL PARISH—United Gas Pub. Serv. Co.'s Pioneer Cooperage 1, 29-21-8e, 15½ cas 167 ft, 10-inch cas 867 ft, dr 1529 ft.

KANSAS

MORTON COUNTY — Hydraulic Oil Co., State land 1, nw se, 22-34-43w, sd 3460 ft.

COWLEY COUNTY—Fisher et al, Hunt 1, c sw se se 11-34-3e, ru and sd.

SUMNER COUNTY—Spencer et al, Porter 1, ne sw se se 11-34-3e, rig. Otstot et al, Warlow 2, c se nw se, 22-33-3w, dr 1465 ft.

COWLEY COUNTY—Lehman et al, Hill 1, se ne, 27-33-4e, dr 680 ft. Roth and Farrout, Reidy 1, c sw nw ne, 8-32-4e, sd 1040 ft.

HARPER COUNTY—Beeler et al, Bear 1, c ne, 21-31-6w, td 1830 ft sd.

FORD COUNTY—Carter et al, Community-Everett 18, c ne, 22-29-21w, (6000 ft test), dr 3623 ft.

SEDGWICK COUNTY — Buck et al, McNanaman 1, c ne nw nw 2-20-1e, 10-inch 2301 ft, hfw 2295-2370 ft, ts 2440 ft sd.

FORD COUNTY—Swain et al, Kenthorn 1, c nw, 21-25-24 west, 5-inch 4645 ft.

STAFFORD COUNTY—Rosenthal, Stanolind & Amerada, Gray 1, c ne, 11-24-13 west, dr 2080 ft.

RENO COUNTY — Shell & Continental, Blake 1, sw se se, 23-23-4w, T. chat 3256 ft, 8-inch 3267 ft, td 3308 ft, 8¼M gas. S. I.

MARION COUNTY—Maidwell, La Master 1, nw c, 31-22-4e, sd 650 ft.

COFFEY COUNTY—Hegberg et al, Kroft 1, se sw se, 30-22-14e, 10-inch 818 ft, td 1300 ft, sd. Roberts et al, Hay 1, sw se nw 32-22-15e, td 1250 ft, sd.

BARTON COUNTY—McCool et al, Isern 1, c sw se ne 12-20-11w, td 1600 ft, sd.

LYON COUNTY—Sheedy et al, Brown 1, c w½ se, 10-20-11e, dr 1800 ft.

RUSH COUNTY—Dewey & Mitchell, Greenwalt 1, c sw, 17-19-16w, 2490-2500 ft, hfw sd 2785 ft.

RICE COUNTY—Skelton Oil, Ott 1, c se se, 16-19-14w, 8-inch 2090 ft, dr 2200 ft. Deitrick & Langston, Purcell 1, nw c, 33-19-9w, td 1265 ft, ur 12-inch.

McPHERSON COUNTY — Henderson & Holden, Sommerfield 1, c ne sw, 23-19-1w, 5-inch 5445 ft, 3467-72 ft hfw, td 3574 ft, dry and abn.

CHASE COUNTY—Kline et al, Elliston 1-A, c se se, 21-19-6e, dr 583 ft.

BARTON COUNTY—Syndicate Oil, Boertz 1, c nw se ne, 13-18-12w, sd 2450 ft.

RICE COUNTY — Allison & Fitzwillams, Blake 1, ne nw, 9-18-10w, rig. McFadden & Shell, Jennings 1, c sw ne nw 29-18-6w, pb to sg 1130 ft, sd.

NESS COUNTY—Gypsy, Coleman 1, c sw ne, 25-17-25w, 3000 ft wih fsh liner 4690 ft, td.

ELLSWORTH COUNTY—Gilmore Oil Co. et al, Sturn 1, nw sw, 31-17-9w, est 2½M gas 2480-85 ft, T. sil 3243 ft, set 5-inch liner at 3245 ft, 3284-88 ft hfw, sd 3295 ft.

MORRIS COUNTY — Urschell et al, Bersuch 1, c nw se nw, 10-17-7e, ru and sd.

ELLSWORTH COUNTY — Alladin et al, Stoddenberg 1, c sw, 22-15-10w, ur 12-inch, td 1270 ft.

SALINE COUNTY—Stanolind et al, Martin Community 1, ne se se, 3-16-3w, 8-inch 2385 ft, dr 2855 ft.

MORRIS COUNTY—Hankenson et al, Cessnum 1, sw se 24-16-9e, sd 2210 ft.

FRANKLIN COUNTY—Fields et al, Usher 1, se c 35-16-17e, sd 400 ft.

RUSSELL COUNTY—Hall et al, Mills 1, se sw se, 30-14-13w, 8-inch 2890 ft, S. O. 2902 ft, td 2908 ft, 1100 ft oil in hole 2 hrs.

ELLSWORTH COUNTY — Milton et al, Kaster 1, se ne, 6-14-9w, td 2655 ft, ur 8-inch. Hershey et al, Schaltz 1, c ne, 9-14-8w, sd 1925 ft, rng 10-inch.

OSAGE COUNTY—Riggs-Smith, Wood 1, c se nw, 31-14-15e, 10-inch 1050 ft, sd.

RUSSELL COUNTY — Austin Drlg. Co., Rockefeller 1, se c 6-13-12w, 3320-25 ft, hfw, td 3374 ft, sd.

SALINE COUNTY—Twin Mounds Oil Co., Weis 1, c w½ ne nw, 30-13-4w (owd) 19-inch 1010 ft, sd 2710 ft.

DICKINSON COUNTY—Severs et al, Livingood 1, ne sw 13-13-2e, sd 3850 ft.

RUSSELL COUNTY — Gilbreath et al, Bratton 1, c ne, 33-11-13w, 3090-94 ft to, sd 3094 ft.

GRAHAM COUNTY — Schleimeyer et al, Clark 1, c sw ne ne, 11-9-25w, 6-inch 4221 ft, dr 4230 ft.

CLAY COUNTY—Nebraska Oil, Tivier 1, sw c 19-8-9e, sd 2500 ft.

SHERIDAN COUNTY — Flo et al, Shoemaker 1, se sw sw, 27-27-26w, 10-inch 1178 ft, sd 1720 ft.

ROOKS COUNTY—Empire, Holsman 1, c sw ne se, 17-7-20w, 8-inch 2770 ft, dr 3075 ft.

WASHINGTON COUNTY—Simcox, Penwell 1, nw se ne, 16-3-3e, sd 1720 ft.

RAWLINS COUNTY—Danciger et al, Unknown 1, sw c 3-2-35w, sd 3200 ft.

OKLAHOMA

ALFALFA COUNTY—T 27n, R 11w, Sec. 12, Smith Bros. Forbes 1, ne c se nw nw, sd 1420 ft.

KAY COUNTY — T 28n, R 3d, Sec. 24, mer et al, Sornick 1, nw c se, hfw 2070-2170 ft sd 2700 ft. T 26n, R 1w, Sec. 32, Boucher et al, Jefferson 1, ne c sw, sd 3502 ft.

HARPER COUNTY—T 25n, R 20w, Sec. 12, Empire, Bruce 1, sw c ne ne sw, sd 7936 ft.

GRANT COUNTY—T 25n, R 4w, Sec. 22, Collmer 2, ne c se ne sw, sd 5640 ft, tools lost.

ALFALFA COUNTY—T 24n, R 11w, Sec. 14, J. V. Bailey et al, Acre 1, c sw ne, show gas 5298-5303 ft, sd 5330 ft.

GARFIELD COUNTY— T24n, R 6w, Sec. 9, Pulse & Beamer, White 1, se c nw, sd 5850 ft.

NOBLE COUNTY—T 21n, R 1e, Sec. 12, Barnsdall et al, Micksch 1, nw c sw, sd 4926 ft.

BLAINE COUNTY—T 19n R 10w, Sec. 13, Washoma, Phillips 1, c nw sw, sd 4600 ft.

LOGAN COUNTY—T 18n, R 3w, Sec. 33, Healey et al, Quier 1, se c sw, sd 3970 ft.

KAY COUNTY — T 28n, R rd, Sec. 24, Simmit Drlg. Co., Hayes 1, nw ne nw, show oil 3185-3208 ft, sd 3250 ft.

PAWNEE COUNTY—T 23n, R 5e, Sec. 15, Cochran et al, McFadden 1, ne c sw, rig. T 22n, R 5e, Sec. 2, Sherry et al, Milsap 1, se c sw, sd 1750 ft. T 20n, R 5e, Sec. 6, W. A. Rookstool, Berry 1, nw ne sw, sd 1951 ft, show gas.

LINCOLN COUNTY—T 13n, R 6e, Sec. 8, Atlantic et al, Beebee 1, sw ne sw, lcn. T 13n, R 6e, Sec. 9, Mid-Continent et al, Lillie 1, ne c se, dr 3930 ft.

OKFUSKEE COUNTY—T 12n, R 10e, Sec. 3, Shepperd et al, Shepperd 1, se nw sw, sd 3690 ft. T 11n, R 10e, Sec. 4, M. H. Watts, Champlin 1, sw c, lcn.

PITTSBURG COUNTY—T 9n, R 16e, Sec. 32, Pattison et al, McDuff 1, sw nw se, show gas 5654-64 ft, dr 5699 ft. T 8n, R 14e, Sec. 14, C. O. Cannady, Smith 1, sw c ne nw nw, rig and tools. T 7n, R 14e, Sec. 5, C. O. Cannady et al, Travis 1, c sw ne, rig.

LATIMER COUNTY—T 6n, R 19e, Sec. 16, P. English et al, Weaver 1, c nw se, sd 1542 ft.

OKLAHOMA COUNTY—T 12n, R 4w, Sec. 17, C. F. Cuniff, Trustee, St. Joseph 1, sw c ne sw se, sd 6700 ft.

SEMINOLE COUNTY—T 10n, R 6e, Sec. 19, Bunte et al, Bruner 1, se c nw, rig.

POTTAWATOMIE COUNTY—T 8n, R 3e, Sec. 21, Droppleman et al, Jones 1, se c nw, cored show oil, 4675 ft, cemtg cas. T 6n, R 4e, Sec. 6, Magnolia, Harris 1, nw c sw, Wilcox 4455-63 ft, cored show oil, sd.

SEMINOLE COUNTY—T 6n, R 7e, Sec. 15, Magnolia, Powell 1, nw sw se, fsh 4190 ft.

ROGER MILLS COUNTY—T 12n, R 24w, Sec. 23, Ute Oil Co. et al, Williams 1, c sw, dr 4712 ft. T 11n, R 26w, Sec. 4, J. J. Rook & Palmer Davis 1, c nw ne (owd) sd 2956 ft.

CANADIAN COUNTY—T 10n, R 6w, Sec. 1, J. V. Bailey, Robinson 1, c ne nw, sd 150 ft.

WASHITA COUNTY—T 8n, R 18w, Sec.

21, Burns and Prince, Dock 1, sw c, sd 1050 ft. T 8n, R 19w, Sec. 29, Snodgrass et al, Blocker 1, nw c, dr 1854 ft.

GREER COUNTY—T 7n, R 22w, Sec. 1, Gool & Dowell, Cliffel 1, nw c, sand 1462-1501 ft, dr 1745 ft. T 7n, R 21w, Sec. 23, H. A. French, Murphy 1, sw nw se, sd 1654 ft.

STEPHENS COUNTY—T 1n, R 8w, Sec. 25, Rose Southard, McKinney 1, ne c, sd 1063 ft.

HUGHES COUNTY—T 5n, R 11e, Sec. 15, J. J. Wright, Roberts 1, se c sw, 2M gas 915-18 ft, sd 1645 ft.

GARVIN COUNTY—T 2n, R 2w, Sec. 24, Malernee, Phillips 1, ne c sw, dr 1040 ft.

COAL COUNTY—T 2n, R 8e, Sec. 10, Whitney et al, Miller 1, se c ne, (owd) sd 760 ft. T 1n, R 8e, Sec. 35, W. E. McCraw, Stiring 1, ne c se, dr 1100 ft.

ATOKA COUNTY—T 3s, R 10e, Sec. 18, Brookshire et al, Guinn 1, nw c, show gas 360-72 ft, sd 500 ft.

BRYAN COUNTY—T 7s, R 10e, Sec. 8, Bryan Oil Co., Childs 1, ne se sw, sd 660 ft.

SOUTHERN CALIFORNIA

BASSETT — Huntington Central Oil Co.'s Pellissier 1, 34-1-11, lcn.

BELL—Cudahay Community Oil Assn.'s Bell 1, dr out cmt, td 1330 ft.

CALABASAS—L. W. Rucker's No. 1, 26-1-17, dr hard sand 415 ft.

CORONA—Western Gulf's Abacherli 1, 12-3-8, sd 3267 ft.

CULVER CITY — Olympic Oil & Realty Co.'s No. 1, 14-2-15, dr shale and hard sand 5150 ft. Taylor Oil Co.'s No. 1, 12-2-15, will deepen from 6080 ft.

DOMINGUEZ—Yenacity Oil Co.'s Del Amo 1, 11-4-13, sd 8500 ft.

FULLERTON — Standard's Bastanchury 1, 21-3-10, swabbing, td 8144 ft, plugged to 7725 ft for production test.

HERMOSA BEACH—E. S. Cone's No. 1, 6-4-14, dr shell 2500 ft. Corniel Oil Corp.'s No. 1, 31-3-14, making production test, td 3210 ft. Hermosa Exploration Co.'s No. 1, dr shale 3035 ft. Tulsa Oil Co.'s Hermosa 2, 6-4-14, dr shale 3155 ft. Westwood Pet. Co.'s No. 1, 6-4-14, running liner to make test, td 3168 ft.

LOMITA—Heller-Davis Oil Co.'s Hamlin 1, dr shale 4075 ft.

MANHATTAN BEACH — Staple Oil Co.'s No. 1, 24-3-15, dr 600 ft.

NEWHALL—Electrological Pet. Corp.'s Overman 1, 6-3-16, rig. Guarantee Oil Co.'s Hammond 1, fsh for bit, td 2990 ft. O. C. O. Oil Co.'s No. 1, 14-3-16, rig. Rayne Oil Co.'s No. 1, 11-3-16, rig.

NEWPORT — Nuoil Co.'s No. 1, 29-6-10, deepening from 1370 ft. Standard's Irvine 1, 26-6-10, dr shale and hard gray sand 4620 ft.

NORTH LONG BEACH—Phoenix Oil Co.'s No. 1, lcn.

OCEAN PARK—Hines Pet. Corp.'s Happy Days 1, 8-2-15, dr shale 5335 ft.

OLINDA—Graham-Loftus Oil Co.'s No. 1, 18-3-9, dr shale 7330 ft.

OLIVE—Texas' Olive Community 1, 7-4-9, dr hard sand 5335 ft.

PLAYA DEL REY — Mesmer City Realty Co.'s No. 1, 24-2-15, dr shale 5339 ft West Port Oil Co.'s No. 1, 27-2-15, fsh for drill pipe, td 5960 ft, well blew out from upper gas pocket and sanded up.

ROSEMEAD—Rancho Oil Corp.'s Harmon 1, 30-1-11, swabbed water on test, td 5974 ft.

REPETTO HILLS—Texas' F. M. 1, 4-2-12, dr mixed sand 3565 ft.

SUNSET BEACH—Gieck Oil Corp.'s No. 1, 20-5-11, dr shale 3050 ft. Whittier-Santa Fe Springs Oil Synd.'s No. 1, 20-5-11, lcn.

WILMINGTON—Pacific Coast Pet. Corp.'s Watson 1, 29-4-13, pumping 300 bbls 20 gravity oil, td 3698 ft, extends Torrance field east one-half mile. McCoy et al's No. 1, lcn; No. 2, lcn; No. 3, lcn; No. 4, lcn; No. 5, lcn; No. 6, lcn; No. 7, lcn; No. 8, lcn; No. 9, lcn; No. 10, lcn; No. 11, lcn; No. 12, lcn.

YORBA LINDA—L. C. Simmell's Fricke 1, 21-3-19, lcn. International Pet. Corp.'s Todd 1, will test on pump, td 2695 ft.

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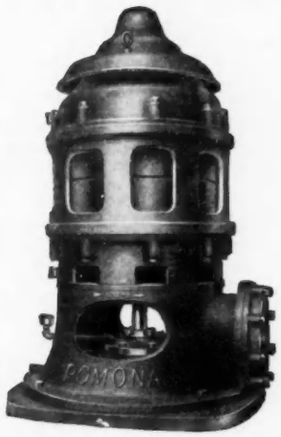

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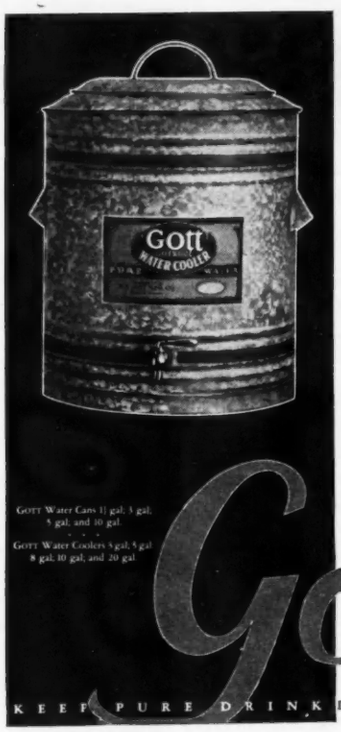

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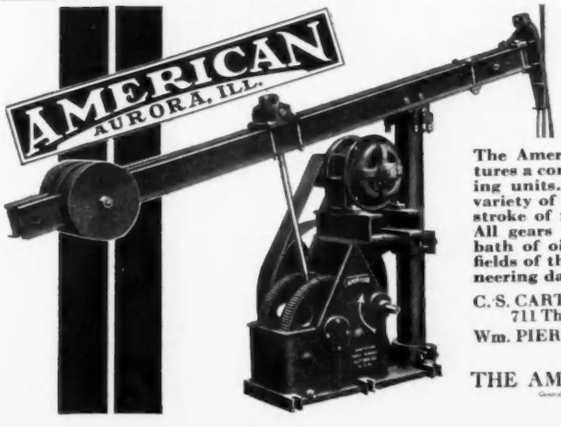

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NORTHERN CALIFORNIA

KERN COUNTY

BELRIDGE—Belridge Oil Co.'s No. 27-64, 27-27-20, dr shale 4228 ft; No. 35-8, 35-27-20, dr shale 4855 ft; No. 35-33, 35-27-20, sd 3980 ft; No. 35-48, 35-27-20, sd 4760 ft; No. 35-49, 35-27-20, sd 1055 ft. Continental's Result 2, 36-27-20, dr shale and shells 4490 ft. General Pet.'s Berry Pet.'s Berry 1, 30-28-21, dr brown shale 4366 ft. Ohio's Bloemer 1, 36-27-20, sd 5985 ft. Reward Oil Co.'s Associated 4, 34-27-20, testing water shutoff with 11¾-inch cas at 5000 ft. Standard's McPhail 2, 36-27-20, repairing 6⅝-inch cas, td 5430 ft. Texas' Martin 1, 22-27-20, sd 5048 ft. K. C. Wallace's No. 1, 32-29-21, making water shutoff test, td 4212 ft.

BLACKWELL'S CORNER — F. B. Langstroth's No. 1, 14-26-19, rigged up. E. J. Miley et al's No. 1, 17-26-19, rig.

BUTTONWILLOW—Wilshire Oil Co.'s Nordon 1A, 7-29-24, dr out cmt, td 6995 ft.

CARIZZO PLAINS — Panorama Oil Co.'s Panorama 1, 7-31-21, re-dr 2500 ft. Tray-El Oil Co.'s No. 1, 7-32-22, co 1280 ft.

DEVIL'S DEN—Cumberland Oil Co.'s Cumberland 2, 21-26-18, rigging up. Standard's Alferitz 1, 14-25-18, bailing mud, showing gas, td 3206 ft.

MOJAVE—Kendall Development Co.'s No. 1, 27-11-9, dr surface clay 200 ft.

SEMITROPIC—Shell's Williams 1, 17-27-23, swabbing water, td 9760 ft, plugged to 5620 ft for test of upper showings.

SHALE HILLS—Rio-Cal Pet. Co.'s No. 1, 2-27-18, re-dr 2250 ft, td 2300 ft.

WEED PATCH—Alpine Oil Co.'s Di Giorgio 1, 13-31-29, fsh recovered, td 3720 ft. Mohawk Oil Co.'s Earl 1, 4-31-29, rigged to sp; Wharton 1, 32-30-29, flowing salt water, td 6150 ft. Osborn and Colter's Shell-Duff 1, 15-30-29, dr shale 2828 ft. Shell's Morris 1, 32-30-29, dr shale 5500 ft; Porter 1, 29-30-29, sd 6410 ft; Porter-Day 1, 29-30-29, plugged to 7967 ft, will make production test.

SANTA BARBARA COUNTY

COAL OIL POINT—Bolsa Chica Oil Corp.'s Augur 191-1, 24-4-29, trying to shut off water, td 4191 ft; well pumped and flowed water and oil.

GOLETA—General Pet.'s Boone 1, validating at 2000 ft; More 3, 6⅝-in cas cmt 5140 ft, td 5185 ft. George W. Johnson's Duncan 1A, 19-4-27, dr shale 2950 ft. Southern California Drilling Co.'s Bishop 1, 12-4-29, dr shale 2400 ft.

LOMPOC—W. E. Smith's No. 1, 18-7-34, sp.

NAPLES — J. H. Cochran's No. 1, 7-4-29, will deepen from 5135 ft.

ORELLA—General Pet.'s Erburo 10, dr shale 2600 ft. Oakburn Oil Co.'s Sperry 169-1, well blew out flowing salt water and gas, td 2821 ft.

SANTA MARIA—Western Gulf's Bradley 1, 5-9-33, dr shale 6465 ft.

VENTURA COUNTY

CONEJO—Cal Mex Oil and Refining Co.'s Burlingham 1, 21-1-20, rigging up. Hansen Pet. Co.'s Hansen 1, 24-1-20, dr shale 200 ft.

HOOPER CANYON — Bardeen Pet. Co.'s No. 1B, 13-4-19, rigged to sp.

OXNARD—Magu Synd.'s Utt 1, dr basalt 3378 ft.

RINCON—Chanslor-Canfield Midway's Hobson A2, 23-3-24, dr brown shale 9850 ft; this is deepest well in the world. Continental's Grubb 1, 23-3-24, dr shale 3655 ft.

SANTA PAULA — San Pedro-Pt. Fermin's Kellerman 1, 13-4-21, dr black shale 3280 ft.

SESPE—Merchants Pet. Co.'s Cochran 1, 1-4-20, dr oil sand and shale 1285 ft, will make commercial producer. Superior's Kirklan 1, 15-4-21, dr shale 6685 ft.

TIMBER CANYON—Petro Well Producing Co.'s No. 4, 18-4-20, developing water.

FRESNO COUNTY—R. Stine's Netherlands 7, 26-20-14, rig. Associated's Jacalitos-Mitchell 1, 22-21-15, dr shale 4575 ft.

KINGS COUNTY—T. H. Purman's Avenal 1, 36-23-17, dr 3555 ft. Utah California Pet. Dev Co.'s No. 1, 13-24-18, lcn. Kettleman Lakeview Oil and Gas Co.'s No. 1, 11-23-19, co 1285 ft. Valley Exploration Co.'s Brennan 1, 20-23-20, co 3710 ft.

MENDOCINO COUNTY — Twin State Oil Co.'s Soldani 1, 14-12-17, dr shale 6615 ft.

SAN LUIS OBISPO COUNTY—Cities Service Pet. Co.'s No. 1, 20-28-15, rigging up rotary. Paso Robles Synd.'s Emerick 1, 34-27-11, fsh for bailer 3970 ft. Latin American Pet. Co.'s Whitley 1, 31-27-15, 8¾-in cas re-cmt 4255 ft, td 4618 ft.

SANTA CLARA COUNTY — Sargent Oil Co.'s No. 1, 1-12-3, rig.

SANTA CRUZ COUNTY — Wellton Oil & Gas Co.'s Galletly 1, will deepen from 2880 ft.

TULARE COUNTY — Big Four Drilling Co.'s No. 1, 29-23-27, co 4330 ft. Fred H. Gholson's Chambay 1, 3-23-27, lcn. George Knepp's No. 1, 20-22-27, dr hard sand 715 ft. C. E. Pettingill's Campo Verde 1, 15-22-27, dr hard shale 925 ft. Larsen, Standard and Ellis' No. 1, 20-24-23, dr shale 550 ft.

ARKANSAS

Company, Well and Location	Initial Production Bbls.	Depth
GARLAND COUNTY—		
H. H. Given, Garrett 1, 1-3n-19w..	*	3756
POPE COUNTY—		
Ark. La. P. L. Co., McFadden & Brooks 2, 15-9-21	*	4368

CHICOT COUNTY—H. R. Smith's Lytle 1, 31-18-3, cemtd back to 2865 ft ta old td 2925 ft.

CLAY COUNTY—S. C. Jeffus, Tr.'s Underwood 1, nw ne 4-20-8e, sd cur titles 1214 ft.

CLEBURNE COUNTY—Dennell et al's Fee 1, 33-11-9, sd 3740 ft.

COLUMBIA COUNTY—Kendall Oil Co.'s Fullenwider & Kitchen 1, ne ne 13-17-22, 12½ cas 75 ft claim oil sand 489-502 ft sd 788 ft. Modisette et al's Sharklee 1, sw ne 33-16-19, sp 10-in cas 42 ft.

DALLAS COUNTY—Jno. James, Tr.'s Fordyce Lbr. Co. 1, ne nw 11-9s-15w, 10-in 176 ft tested dry in soft white sand 2502-10 ft cored hard sand 2520 ft changing from 3-in to 4-in ds td 2520 ft. E. C. Brewer, Tr.'s Hillman 1, se ne 20-10-13, 10-in 138 ft sd in rock 2846 ft.

GARLAND COUNTY—H. H. Given's Garrett 1, nw sw 1-3n-19w, sw abn in sandy lime td 3756 ft.

GRANT COUNTY — Spann & McClung's Sarah Page 1, sw nw 3-3-12, ur 7-in cas at 226 ft td in soft white sand 1024 ft.

HOT SPRINGS COUNTY—Jno. Watkins, Tr.'s Cunningham 1, ne ne 11-5-16, sd 220 ft.

JOHNSON COUNTY—Blackwell O&G Co.'s Wyver 1, 21-8-23, ta 5600 ft.

LA FAYETTE COUNTY—Crawford Drilling Co.'s Vaughan 1, 25-19-25, rig. McIver et al's Hattle 1, nw ne 1-20-26, 12½ cas 115 ft sd 2520 ft. Smitherman & McDonald's Bodcaw 1, se nw nw 16-15-22, 12½ cas 42 ft 8¼ cas 1176 ft 6⅝ cas 1193 ft sand 1194-98 ft sd hfsw td 1199 ft.

LAWRENCE COUNTY — Marguerite Dev. Co.'s Broadway 1, 31-17-1, sd 45 ft.

LINCOLN COUNTY — L. B. Cook, Tr's McGehee Pltg. Co. 1, ne sw 5-8s-7w, 12½ cas 90 ft dr gummy shale 682 ft.

LITTLE RIVER COUNTY—Fay Roberts Oil Co.'s Russell 1, nw nw 25-12-29, lcn.

LOGAN COUNTY—M. W. Greesom's Parks 1, 21-8-24, sd 1309 ft. J. H. Flowers' White 1, 13-5-26, sd 3610 ft.

MILLER COUNTY—E. & F. Oil Co.'s E. L. Beck 1, 36-15-26, 6⅝ cas 2792 ft 4½ cas 2957 ft sd 2968 ft. Bullock Oil Co.'s Hervey 1, 2-15-26, junk in hole ta 2832 ft. East Texas O&G Co.'s Hervey 1, 2-15-26, ta 890 ft. Fitzwater et al's Beck 1, sw se 33-15-26, 10-in 85 ft sd J. D. McRae's Smith 1, nw se 28-15-26 dk.

OUACHITA COUNTY—Copenhaver et al's Elliott 1, se se 11-15-17, 6-in 2185 ft tested dry sd 2210 ft.

PIKE COUNTY—Henderson et al's Tilyou 1, 26-8-24, show heavy oil 567 ft ta in lime rock 2920 ft. E. R. Henderson's Lee 1, sw se 31-8s-24w, sp 10-in 198 ft sd dr water well.

POPE COUNTY—Ark. La. P. L. Co.'s McFadden & Brooks 2, ne nw 15-9-21, 13⅜ cas 1900 ft tested 1 mil ft gas 3285 ft 8⅝ cas 3415 ft 8-in 3451 ft 5 3/16 cas 4145 ft dry abn in black sand td 4368 ft. Baird 1, se nw 11-7n-20w, 10-in 1168 ft 6⅝ cas 3403 ft sd repr rig td 4115 ft.

SCOTT COUNTY — Heavener O&G Co.'s Reser 1, 36-4-26, fsh cas td 1536 ft. Waldron O&G Co.'s J. G. White 1, sw nw 17-3n-29w, 10-in 225 ft sd wo cas td 1860 ft (sec hole).

SEBASTIAN COUNTY—M. W. Greesom's Spears 1, 9-7-29w, sd after testing sw td 2515 ft.

SEVIER COUNTY — Tri-State O&G Co.'s Bank of DeQueen 1, s½ sw 34-8s-32w, dk.

UNION COUNTY—Rice et al's Whatley 1, 7-17-15, sd 2186 ft. Southern Prod. Co.'s

Wingfield 1, se nw 16-19-15, 10-in 103 ft sd 2608 ft. Lion O. R. Co. et al's Guy P. Hayes A-9, sw ne 4-16-15, 12½ cas 270 ft dr lime strks sand and red beds 3250 ft (to go to 5000 ft). Wilson & Chapman's Ned Parker 1, nw se 3-18-13, 10-in 230 ft tested 51 joints fluid 15 oil and 36 sw about 50 per cent each from 3525-41 ft sr prep to core td 3541 ft. Hadley 1, ne sw 3-18-13, 10-in 102 ft 600 ft fluid in hole 30 per cent sw sd td 3570 ft. Marine Oil Co.'s P. Winn A-2, nw nw 11-18-13, 10-in 276 ft dr red beds 3475 ft. Union Sawmill 1, se se 3-18-13, 10-in 236 ft dr lime 2600 ft.

WASHINGTON COUNTY—Taylor et al's Runny 1, 1-13-29, sd 1702 ft. Lincoln Lease Holding Synd.'s Townsite 1, 30-15-32, ta 1500 ft. C. H. Willoughby's Jones 1, 34-16-30, sd 2150 ft. O'Hara & Shetterley's Boyd 1, 12-16-32, ta 850 ft. Delbert Graves' Cunningham 1, 14-15-32, sd in gray sand 602 ft.

VAN BUREN COUNTY—J. S. Martin's Scanland 1, 5-9-13, sd 50 ft.

YELL COUNTY—T. Luckett's Balcon 1, 36-7-12, sd while fsh cas/ td 5710 ft.

MISSISSIPPI

Company, Well and Location	Initial Production Bbls.	Depth
CLARKE COUNTY, (Quitman)—		
Gulf Ref. Co., Box 1, 11-2n-15e....	*	4515

CLARKE COUNTY, (Quitman Dist.)—Gulf Ref. Co.'s Box 1, nw se 11-2n-15e, elev 221 ft 15½ cas 105 ft 10-in 922 ft top Midway black shale 2205 ft top Selma chalk 2637 ft base chalk 3703 ft top Tuscaloosa red beds 4205 ft dry shn in water sand td 4515 ft.

CLAY COUNTY—Ohio Oil Co.'s Cantrell 1, ne ne 16-15-5e, elev 270 ft 13⅜ cas 1389 ft 9⅝ cas 2929 ft dr 3715 ft.

CHICKASAW COUNTY—Hightower & Golsan's Fleming 1, 20-13s-3e, sd wo 6-in cas td 1505 ft.

COVINGTON COUNTY (Collins District)—Gulf Refining Co.'s Pope 1, 35-8n-16w, rig up to deepen to 4500 ft, td in Wilcox 3000 ft.

GRENADA COUNTY—Carter Oil Co.'s et al's Dubard 2, se nw 18-22-4e, recemtd 12½ cas 786 ft, dr 2000 ft.

JASPER COUNTY (Bay Springs District)*—Bay Springs Pet. Inc's J. H. Keyes 1, nw ne 21-2n-10e, 15½ cas 104 ft top Cane River 1090 ft sd in Cane River wo fuel td 1475 ft.

MONROE COUNTY (Amory District)—Amory Dev. Co.'s Bourland 1, sw ne 2-15-19, sd in brown sand 3007 ft, P. J. McAlpine's Cowart 1, ne su 2-12-19, 10-in 694 ft 8¼ cas 1276 ft, sd in grey pinkish white chalk, wo 6⅝ cas to shut off water, td 2197 ft. Associates' School Board 1, sw se 16-15-17, sd 60 ft.

RANKIN COUNTY (Jackson District)—Love et al's Muse 1, se se 32-7-4e, 12½ cas 600 ft, dr Wilcox 3737 ft. Love et al's Moore 1, se nw 28-6-2e, ta 900 ft. Atkisson et al's Valentour 1, nw nw 18-5-2e, rig.

SCOTT COUNTY—Culley et al's Owen 1, se ne 2-8n-9e, dk.

WARREN COUNTY (Vicksburg District)—Eagle Lake O. & G. Co.'s Kiger 1, sw se 9-18n-2e, sp Dixie Pet. Co.'s Pat Henry 1, se ne 36-17n-4e, 12½ cas 120 ft, dr sand lignite & gumbo 2223 ft. Vicksburg O.&G. Co.'s Dornbusch 1, sw ne 8-18n-5e, ta 1600 ft.

WINSTON COUNTY (Louisville District)—Miss. Drilling Co.'s Scarbrough 1, nw nw 15-13n-14e, bass red beds 2739 ft, cored black shale 3049-55 ft.

YALABOUSHA COUNTY (Water Valley District)—J. D. Collett et al's Blackmer 2, sw nw 14-11s-4w, 12½ cas 103 ft, 8⅝ cas 2428 ft, dr hard lime 2860 ft.

ALABAMA

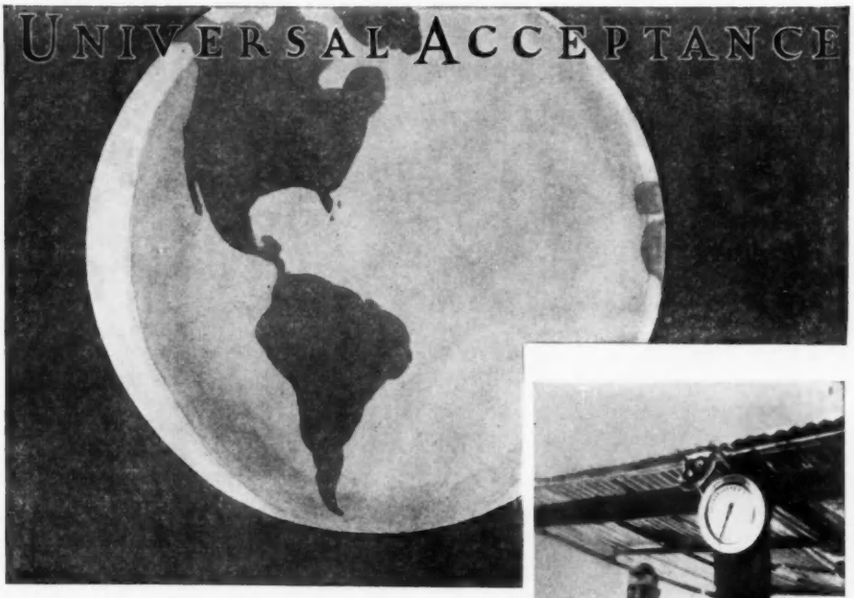
MADISON COUNTY—Tennessee Valley O. & G. Co.'s Fee 4, 1-4s-2e, no report.

SUMPTER COUNTY (Livingston District).—Forked Lighting O&G Co.'s Nixon 1, sw ne 30-20-2w, dk.

WASHINGTON COUNTY— Hobson et al's Wilson 1, 27-7-1w, 10-in 130 ft, driving 8-in pipe at 920 ft. Hobson Bros. 1, 91-8-2w, ta 1450 ft. Oscar Brown's U. S. Land & Cotton 2, 25-3-2w, sd 700 ft.

TENNESSEE

DECATUR COUNTY — Chester County O&G Co.'s Montgomery 1, dr lime 2221 ft.



Driller C. D. McGee, Baba Gurgur Well No. 26, Iraq Petroleum Co.

In IRAQ

IRAQ—one of the greatest potential oil producing sections of the world—a vast, isolated desert—far removed from the source of supplies. Dependable, trouble-free equipment is a necessity.

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Barrett Specification

PIPE LINE ENAMEL

Because The Barrett Company maintains absolute control over every step in the process of manufacturing the various Barrett Specification Pipe-Line Enamels *any* order can be *exactly* duplicated at *any* time. From selection of the crude to finished product, each batch is tested at each stage of manufacture. Specially trained chemists, with the most modern laboratory equipment, make certain that the finished enamel is exactly as specified. Every drum is identified. Exact data is kept on each shipment.

Technical assistance on any problem of pipe line protection is available upon request, without obligation.

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For pipe of large diameter The Barrett Company will furnish equipment required to revolve pipe and spread enamel.

New Equipment for the Field

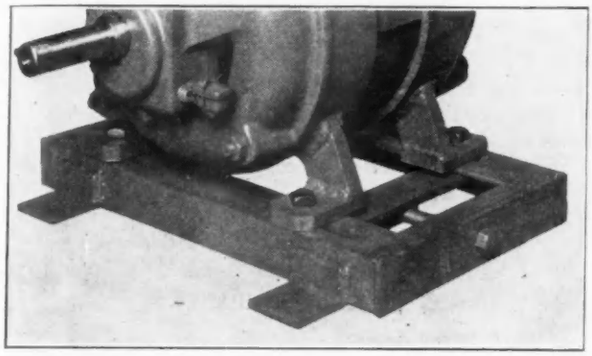
MACHINERY - TOOLS CATALOGS - BOOKS

▼ ▼ ▼

Welded Steel Motor Base

LINCOLN ELECTRIC COMPANY

The Lincoln Electric Company, Cleveland, Ohio, manufacturers of "Linc-Weld" motors and "Stable-Arc" welders, recently announced the manufacture of a welded steel motor base of one piece construction.



Lincoln Welded Motor Base

These new bases are designed to be used instead of slide rails. They are constructed of rolled steel angles and flat bar stock fused into one homogenous unit by the electric arc. The flanges of the angles to which the motor is bolted are slotted to permit moving the motor on the base for purpose of tightening the drive belt. At one end a screw adjustment is provided for moving the motor on its base in such cases.

Drilled angles are welded to the sides form hold-down lugs for securing the base in position. The arc welded steel construction as employed in this base offers a stronger, stiffer base with less weight than the traditional cast construction.

New Spudder

LEE C. MOORE & COMPANY, INC.

Lee C. Moore & Company, Inc., Pittsburgh, is now in complete production on the new Champion spudder, designated as Moore Type 10.

Based on 24 years experience in manufacturing oil field equipment the company offers this spudder as a convenient, economic means of drilling shallow wells, cleaning out oil wells to a depth of 2500 feet without the use of a derrick or standard rig front.

The Moore Type 10 Champion spudder is light weight, portable and easily operated. A tractor, such as used on any lease, supplies the power and is used to haul the equipment from one well to another.

Where a pumping derrick is erected over the well, Type 10-S spudder is used. It is the same type as Type 10, except that it has a stub frame to go under the bull wheel girt of the derrick.

Lee C. Moore & Company, Inc., will furnish complete details on this new spudder upon request to the home office or to branch distribution points.

Hardfacing Rod

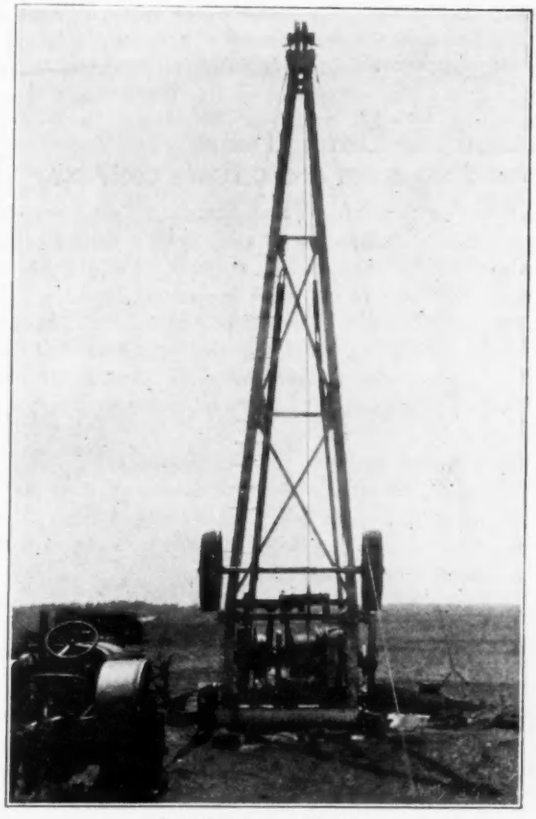
ARMITE LABORATORIES

Armite Laboratories, 318 West Ninth Street, Los Angeles, announces the development, through its engineering department, of a product and method for hardfacing cable drilling tools. The product is known as Armite No. 2, a hardfacing rod.

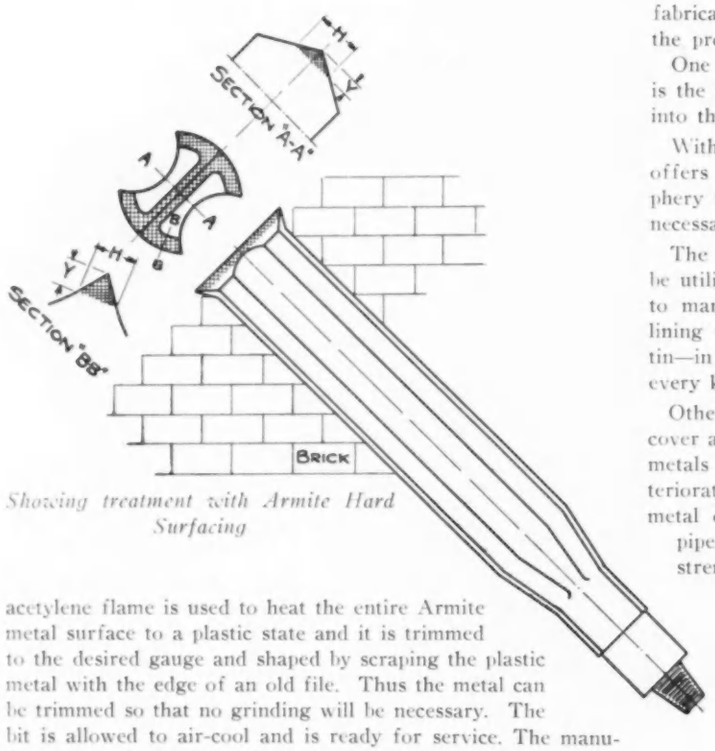
The bit is dressed to shape, then ground for removal of scale from the area to be hardfaced. It is then pre-heated to approximately 1500 degrees F in a fire brick furnace, which is slightly raised so that the cutting end of the bit will be at about a 45 degree angle above the bit pin end on the ground.

When the bit becomes heated the fire is shut off and the bricks removed from the front of the furnace to provide working room. The working surface of the bit is cleaned with a wire brush. Armite hardfacing rod is applied with an oxy-acetylene torch, the frame containing an excess of acetylene. The steel is brought to a sweating heat, the end of the Armite rod is placed in the frame and the metal melted on to the sweating steel surface. The entire steel surface is first coated with a layer of Armite rod, with additional rod added by working back, bringing it up to the desired thickness so that a heavy coat can be applied.

After the desired amount of metal has been applied, the



Lee C. Moore Spudder



Showing treatment with Armite Hard Surfacing

acetylene flame is used to heat the entire Armite metal surface to a plastic state and it is trimmed to the desired gauge and shaped by scraping the plastic metal with the edge of an old file. Thus the metal can be trimmed so that no grinding will be necessary. The bit is allowed to air-cool and is ready for service. The manufacturers point out that in order to re-dress a bit which has been treated with the rod, the bit must first be pre-heated. This process is completed the same as with a new bit, except that the cutting end of the bit with the hardfacing must not be placed in the furnace but the heat is applied to the shank so that the hardfacing is heated from the steel outwardly. Armite Laboratories has issued a bulletin on hardfacing that may be procured by addressing the Los Angeles office.

Method for Lining Tubes

DETROIT SEAMLESS STEEL TUBES COMPANY

Detroit Seamless Steel Tubes Company, Detroit, announces its new method of lining steel tubes with a variety of metals or alloys to fight the corrosion problem. The officials of the company state that of particular importance in the application of this new process to industrial uses is the fact that in combining the inner lining metal with the outer steel shell the two are bonded by fusion so inseparably that there is not only no evidence of separation, but no manual means of destroying the union.

Further demonstrations of the completeness of fusion have been obtained, in cases where the linings were of malleable metals, by splitting and rolling the finished tubes into flat sheets which still retained their respective layers in proper comparative thicknesses, inseparably bonded together. In other tests the combination has been manipulated or worked into various forms, even to the extent of turning it "wrong side out,, without destroying the union in any way.

The greatest industrial possibilities of the process, according to C. H. Hobbs, president of the company, can be realized through its advantages in the production of steel-backed bearings. The fact that any specified thickness of the bearing metal can be accurately controlled, and the further fact that tubes in lengths as great as 16 feet, or even longer, can be fabricated with maximum economy, particularly recommends the process for quantity production of bearings.

One of the important advantages accredited to this process is the texture of the lining metal, obtainable because it is cast into the tubing by a centrifugal process.

With the lining done centrifugally under heat the process offers uniform distribution of the lining material on the periphery to the extent that only the minimum of machining is necessary.

The fact that a wide variety of metals and compositions can be utilized in the lining process renders this method adaptable to many commercial uses aside from bearings. Among the lining materials already successfully used are bronze, copper, tin—in fact almost any alloy or non-ferrous metal. Practically every kind of bearing bronze can be used.

Other practical uses to which tubing so lined may be put cover a wide range, among them tubes lined with non-corrosive metals for conveying liquids whose chemical properties deteriorate steel; tubes used in water tube boilers where a lining metal of high heat conductivity is advantageous; and water pipes to displace tubes of copper or other material where strength is desired factor.

Tubing Catcher

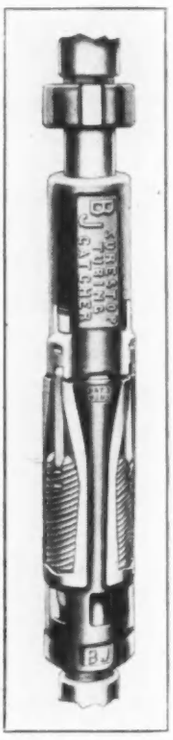
BYRON JACKSON COMPANY

Byron Jackson Company, Los Angeles division, announces a new tubing catcher under the name of "BJ Surestop tubing catcher."

This catcher consists of only 10 parts, including no small bolts, nuts nor cotter pins. The over-all length has been held to a minimum to facilitate running operations. The design has included unusually large circulation passages for further increasing the running in speed.

The three slips are of heat treated steel, and are of increased areas. Extra width has been given these slips, so that this width, with the angle of the teeth, provides safe catching and holding in a drop not to exceed 2½ inches. A guide collar, located near the top of the catcher, is to prevent the slips passing over the head of the catcher.

Illustrated literature describing this new tubing catcher will be supplied upon request to P. O. Box 1307 Arcade Station, Los Angeles.



BJ Tubing Catcher

New Ownership Maps

HEYDRICK MAPPING COMPANY

Heydrick Mapping Company, Wichita Falls, Texas, announces the completion of ownership maps on Cass and Shelby Counties in East Texas. This company pioneered the mapping business in the North Texas and Panhandle sections, and will soon have available other maps on East Texas counties, all being drawn on a scale of 4000 feet to the inch, with complete data on past and new field developments. The maps are available on cloth or paper.

Manufacturer and Supply Dealer Notes

▼ ▼ ▼

American Meter Company, Erie, Pennsylvania, announces the release of a new 220-page general catalog and reference book, G-1, 1931, covering products and operating data for the measurement and testing of manufactured, natural or liquefied petroleum gases. As well as presenting illustrated descriptions and specifications on specific equipment, this publication is compiled to serve for a quick reference guide to a large amount of educational and operating literature made available by American Meter Company on various phases of measurement engineering. This is accomplished by a two-page colored chart showing a set-up of the company's published information in its relation to the five main sections and the 16 sub-sections comprising the product data given in the book. Cross reference is also resorted to on the title pages of sub-sections to show clearly the additional operating information that is available to cover a specific product classification.

Several new products and recently introduced improvements are included in the new edition.

F. H. Morehead, chief engineer of Walworth Company, was elected engineering vice president of the company at a recent meeting of the directors. Mr. Morehead, a graduate of the University of Missouri, was employed for several years by American Steel and Wire Company, and later was with Kewanee Private Utilities Company. In 1905 he went to Western Tube Company. This plant was subsequently acquired by Walworth Company. Mr. Morehead was made manager of Walworth Boston Works in 1921 and later became chief engineer of the company.

Trackson Company, 1320 South First Street, Milwaukee, Wisconsin, has issued an attractive, illustrated circular describing the adaptability of the new Model GH Trackson McCormick-Deering. This heavy duty crawler tractor is designed especially for the mounting of pipe handling booms, hoists, cranes, bulldozers, trench rollers, etc. A copy of the circular may be had for the asking.

Brauer Machine & Supply Company of Oklahoma City has opened a machine shop at Arp, Texas, completely equipped for all kinds of production, drilling and pipe line work. This company has also opened a supply store at Arp, central portion of the southern end of the East Texas field, and will shortly open another at Willow Springs, also in this district.

Chicago Bridge & Iron Works' Dallas office was moved May 1 to the Burt Building. This office, which is in charge of H. B. Murphey, handles all sales work for the company in the Southwest and erection work on tanks in the entire South.

Davey Compressor Company, Inc., Kent, Ohio, gives a unique presentation of its line of compressors in a bulletin of 16 pages recently published, entitled "4 Air Compressors Went to School." Illustrated descriptions on Davey compressors may be had for writing for this bulletin.

Young Radiator Company, Racine, Wisconsin, has appointed W. H. Benduhn, with offices at 664 Mission Street, San Francisco, its Pacific Coast representative.

Dardelet Threadlock Corporation has granted to S. M. Jones Company of Toledo, Ohio, a license to manufacture and sell sucker rods with the Dardelet self-locking screw threads.

Under this new arrangement S. M. Jones Company, with each shipment of Dardelet threaded rods, will deliver a certificate of insurance guaranteeing the payment of $30 for each joint broken while in service. This sum represents the cost of the broken rods and the average expense of recovering the broken string from the well, according to the announcement.

Link-Belt Company, 910 South Michigan Avenue, Chicago, has recently published a folder, No. 1253, describing the company's vibrating screen for reclaiming rotary mud, a product introduced at the Tulsa oil exposition late last year. Interesting pictures in this folder show this screen in action and show how it is installed and operated. A copy of the folder is available upon request.

Universal Rod & Equipment Company, 10510 South Alameda Street, Los Angeles, announces the appointment of A. R. Flournoy as sales manager. He has been actively connected with sales work in the oil industry for 10 years, having last been Mid-Continent and California manager for Gardner-Denver Company. Offices and stocks of the company's equipment are located at the plant of the Earle M. Jorgensen Company, above address, distributors in California of Bethlehem alloy and high carbon steels. Universal Rod & Equipment Company is represented in New York by Oilfield Equipment Company.

The Wright Manufacturing Company, Bridgeport, Connecticut, has issued a new catalog on Wright electric hoists. The catalog contains 48 pages and gives a complete description of Wright electric hoists as well as dimensions and other useful data. The hoists include hook and bolt suspension; plain, geared motor driven trolleys; and drum and low headroom types. Shop superintendents interested in a copy of this catalog should address the manufacturer at Bridgeport.

LeBus Rotary Tool Works, Electra, Texas, has recently opened the combined shop and store shown here, located at Willow Springs, three miles from Longview, Texas, in the new East Texas oil area. LeBus drilling and fishing tools will be sold and serviced at the new location, and hard facing work and pipe perforating will be done. A complete machine shop and forge shop has been installed.

Squeaks From the Bull Wheel

▼ ▼ ▼

A certain old lady was so concerned about one of the villagers who was unable to read that she persuaded the village schoolmaster to give him some lessons. Some time later, she met the villager and said to him:

"Well, George, I suppose you are now able to read the Bible fairly easily?"

"Lor' bless you, mum," he replied, "I was out of the Bible and into the football news over a week ago."

Did ye hear about Fergus MacTight? When they sent him across the ocean they put him in one steamer and his baggage in another one.

What was that for?

So they wouldn't lose everything if one of the boats went down.

"I tell ye," said Pat, "the ould fri'nds are the bist afther all, and, phwat's more, I can prove it."

"How are you going to prove it?"

"Where will ye find a new fri'nd that has sthud by ye as long as the ould ones have?"

"Did you make the debating team?"

"N-n-o. They s-s-said I w-w-wasn't t-t-tall enough."

Confess now—you men like talkative women as well as you do others.

What others?

I hear that Henmore Farms Dairy stamps all its eggs with its name and the date laid, so you can tell just how fresh they are.

Yes, the last dozen eggs I bought from them were the freshest I have ever had—I got them a week ahead of the date of issue!

Daughter (entertaining swain in the small hours)—Has father gone to bed yet?

Mother—No. He's in the cellar, reading.

Daughter—Whatever is he reading in the cellar?

Mother—The electric light meter.

A young Swede appeared at the county judge's office and asked for a license.

"What kind of a license?" asked the judge. "A hunting license?"

"No," was the answer. "Aye tank Aye bane hunting long enough. Aye want marriage license."

APPLEMAN GUMBO BITS

When Your Old Bit Gets Flatter'n H - - - !

change to an **APPLEMAN**

Driller: **"Alright, derrick man, shut your pump down; we've got to come out o' th' hole again."**

Derrick Man: **"What th' H——! Three round trips in one night! We haven't been in th' hole forty-five minutes yet."**

Driller: **"Yeah, I know, but that d—— bit's flatter'n H——!"**

Derrick Man: **"Well, take my advice and finish this hole with a couple of APPLEMANS."**

Use an APPLEMAN BIT on your next well.

B.K. APPLEMAN
BEAUMONT, TEXAS

Young Wife — Would you be surprised if I gave you a $50 check for your birthday, darling?

Husband—Yes, sweetheart, I would.

Wife—Well, here it is all made out ready for you to sign.

Mabel—And where is my great big strong man going now?

Buck—I'm gonna hunt up the janitor. I want the bathroom window opened.

Pa, what do standing armies sit on when they are tired?

The seat of war, my boy.

Does your wife know the traffic rules?

No, but then she's young and good-looking.

How fast was she driving when she passed you?

Well, the bulldog on the seat beside her looked like a dachshund!

Mary—They've put my picture up in the beauty parlor! What do you think of that?

Kitty—I suppose they put a "Before" sign on it!

What makes you think that Dundreary is odd?

Well, when he got his bonus check he put it in the bank.

What makes you think you are qualified for a post in the diplomatic corps?

Well, I've been married for 20 years and my wife still thinks I have a sick friend I sit up with.

Hotel Page—Telegram for Mr. Niedspondiavanci, Mr. Niedspondiavanci!

Niedspondiavanci—What initial, please?

Smart—In days of the Old Testament it was considered a miracle for an ass to speak—

Fellows—Yes, yes, go on!

Smart—While today nothing short of a miracle will keep one quiet.

Him—Do you believe everything every fool tells you?

Her—Oh no, darling, but sometimes you do sound so plausible!

Oh, my dear, how can I leave you?

You have your choice of street car, bus or taxi.

Lucille—I think Harold grows more like his father every day.

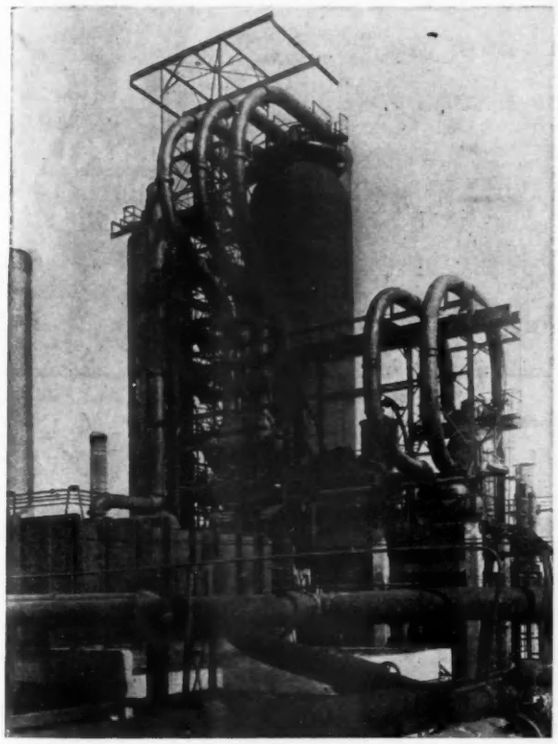
Eloise—Really? And have you done nothing to prevent it?

Clerk—Could I interest you in a one-piece bathing suit?

Henry—Not right now, girlie—my wife's over there at the ribbon counter.

GULF

Modern Methods Make Modern Gulf Products



the largest Atmospheric-Vacuum Still ever built.

Paraffine and Coastal Crudes

Gasoline · Lubricating Oils

Naphtha · Gas · Oils

Wax · Petroleum Coke

Cylinder · Engine · Cordage

GULF REFINING COMPANY

General Sales Offices: PITTSBURGH, PA.

WE ARE MAKING FRIENDS

With This New Lowell "Safety Steel" 24″ Reversible Ratchet Socket Wrench. A Tested and Unconditionally Guaranteed Handle.

CAPACITY ⅝″ TO 1¼″ BOLT DIAMETER NUTS — (1¼″ TO 2″ ACROSS THE FLATS)

Requisition For One Today!

LOWELL WRENCH CO.

WORCESTER, MASS.

SEND FOR CATALOG O.

Stressed to the LIMIT!

HOW far will the wire for Yellow Strand Rotary Drilling Line stretch before it breaks? How many bends before it snaps? How many twists? Is the steel up to the mark in every respect?

Many laboratory tests have to be passed with a *high rating* if the wire is to earn a place in Yellow Strand, the super rope. No wonder Yellow Strand lasts economically long in spite of frozen pipe, crooked hole and other drilling griefs. Try it.

Testing the elongation and breaking strength of wire.

Get Catalog No. 40

Broderick & Bascom Rope Co., St. Louis

New York Houston Portland Seattle

FACTORIES: St. Louis and Seattle

Distributors in all Oil Fields

We also manufacture B & B Cable Tool Drilling Lines, Sand and Pumping Lines —Patentsteel, Extra Strong Cast Steel and Cast Steel.

P-17

Yellow Strand Rotary Drilling Lines

MADE OF WIRE DRAWN TO OUR SPECIFICATIONS FROM GENUINE SWEDISH STOCK

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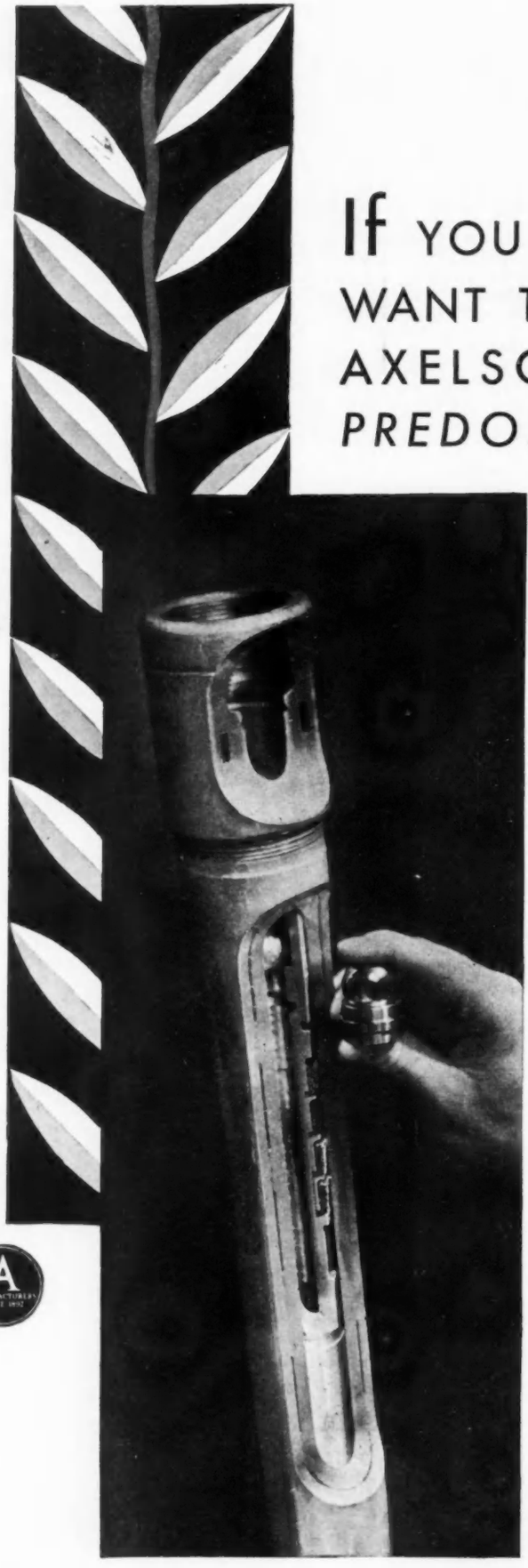
W-K-M Company
Wright Manufacturing Company

Youngstown Sheet & Tube Company

Every precaution has been taken to insure accuracy in listings in this Index to Advertisers, but last minute changes may result in omissions or erroneous listings for which we ask your indulgence. This index is for the convenience of readers and we do not assume liability for improper listings.

STRAIGHT FACTS

The tenth advertisement of the series and the third devoted to Pumps.



If YOU REALLY WANT TO KNOW *WHY* AXELSON PRODUCTS *PREDOMINATE* . . . .

Axelson has the confidence of the oil industry. One hundred and fifty-six years ago Sir William Pitt said: "Confidence truly is a plant of slow growth." As true today as then, confidence is also a powerful factor in business. It is the foundation, in fact, on which business solidity is built. With it, success is assured. Without it, failure is certain. The confidence which buyers of oil well pumping equipment place in Axelson is not merely blind faith—it is confidence built on the cornerstones of reliable products, prompt service and fair treatment in all business transactions.

Let us send you the story of Axelson Pumps and Sucker Rods and how they will save many production dollars in any oil well.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

A MANUFACTURERS SINCE 1852

AXELSON MFG. CO., Ltd.
P. O. Box 337, Los Angeles
Tulsa - St. Louis
New York City: 30 Church St.
Mid-Continent and Eastern Distributors:
FRICK-REID SUPPLY CORPORATION

Yes, you may send me the story of Axelson Pumps and Sucker Rods.
O. W-M22

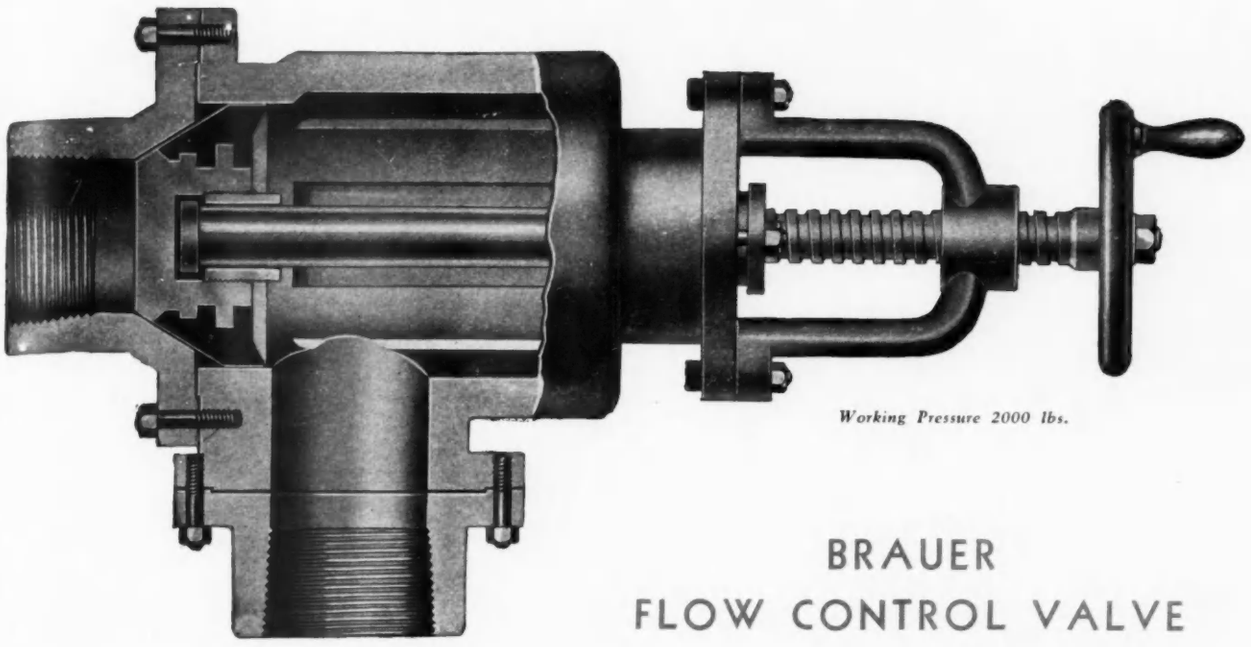
Name.....

Position.....

Company.....

Address.....

AXELSON PUMPS AND SUCKER RODS



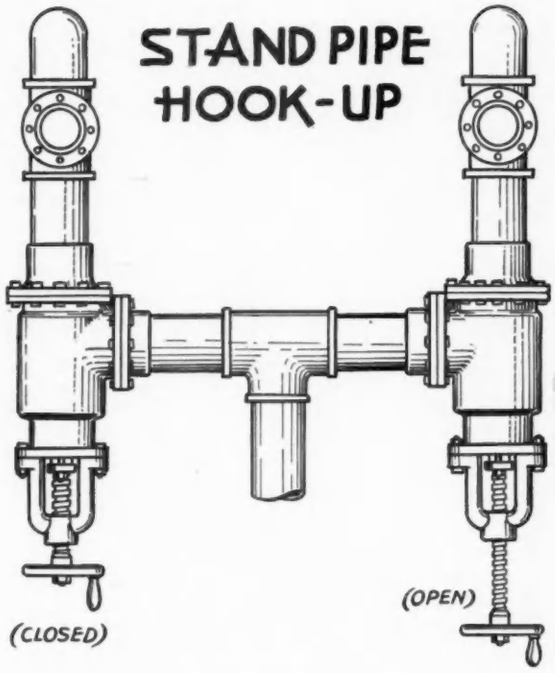
Working Pressure 2000 lbs.

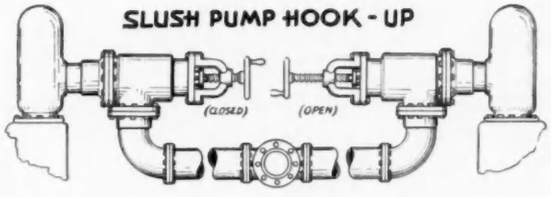
BRAUER
FLOW CONTROL VALVE

The new Brauer Flow Control Valve is designed for an All Purpose Valve. It can be used on the discharge lines of your pumps and will permit the operation of either one or both pumps at the same time. It will also enable you to compound the pumps when necessary.

It can be used on either a one or two standpipe hook-up—the fluid flow being handled in any direction desired. Both standpipes can be closed at the same time.

Metal to metal seat with rubber seal.





OTHER BRAUER PRODUCTS

Swivel Circulating Head	Compound Brake Lever
Hydraulic Wall Hook	Valve Seat Pullers
Shale Separators	Elastic Safety Lock Nuts
Stand Pipe Goosenecks	Special High Pressure Fittings

Brauer Improved Manifold Valve

BRAUER SUPERIOR PRODUCTS
SOLD THRU YOUR SUPPLY STORE

BRAUER MACHINE & SUPPLY CO.

OKLAHOMA CITY, OKLAHOMA — ARP, TEXAS

DOWN Goes the LAYNE SCREEN
UP Goes the Production

THE LAYNE

Milled Groove Screen

Such experience is not at all infrequent. In fact on most the wells that the Layne Screen has been installed the production increased as much as 33-1/3% to 100%.

The famous Layne Milled Groove is responsible for this production increase. It not only increases the inlet area of each hole in the pipe but also serves as a direct guide for oil entering the keystone wire wrapping. These grooves extend in opposite vertical directions from each hole in the pipe for a distance of about one inch. The keystone wire, wrapped around the pipe passes over each groove from six to eight times.

As the small edge of the wire is next to the pipe and the shoulder or large edge is to the outside there is no possibility of the screen becoming clogged. The point of entry of the oil into the screen is of course a very narrow gauge, but due to the vertical sides of the keystone wire the oil instantly enters a larger chamber where it goes into the groove and through the pipe holes into the pipe. This feature of the Layne screen not only prevents clogging but absolutely eliminates sand cutting.

Under severe laboratory tests it was found that the Layne screen can safely withstand the weight of 8000 feet of casing. Actual field use has demonstrated to thousands of users that there is no other screen to give such a high degree of satisfactory service as the LAYNE.

The Layne & Bowler Co.
HOUSTON, TEXAS

The Layne New York Co.,
30 Church St., New York

The Layne & Bowler Corp.,
Los Angeles, Calif.

Vickers Limited,
London, England